LDK 4053

Camera Base Station

Technical Manual

3922 496 48321

PHILIPS

LDK 4053
Base Station

Technical Manual

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Safety Summary

Read this section carefully before installing or servicing this equipment

This manual is intended as a guide for trained and qualified personnel who are aware of the dangers involved in handling potentially hazardous electrical/ electronic equipment. It is not intended to contain a complete list of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, maintenance and service of this equipment involves risks both to personnel and equipment and must be performed only by qualified personnel exercising due care.

During installation and operation of this equipment, local building safety and fire protection standards must be observed.

Before connecting the equipment to the mains of the building installation, the proper functioning of the protective earth lead of the building installation needs to be verified.

Whenever it is likely that safe operation is impaired, the apparatus must be made inoperative and secured against any unintended operation. The appropriate servicing authority must then be informed. For example, safety is likely to be impaired if the apparatus fails to perform the intended function or shows visible damage.

This product has been designed and tested according to publication EN60065.

Caution and Warning Statements

When performing service, be sure to read and comply with the warning and caution notices appearing in the manual.

Warnings indicate danger that requires correct procedures or practices to prevent death or injury to personnel.

Cautions indicate procedures or practices that should be followed to prevent damage or destruction to equipment or property.

WARNING

THE CURRENT AND VOLTAGES PRESENT IN THIS EQUIPMENT ARE DANGEROUS. ALL PERSONNEL MUST AT ALL TIMES FOLLOW THE SAFETY REGULATIONS.

ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS OR PANELS. ALWAYS DISCHARGE HIGH VOLTAGE POINTS BEFORE SERVICING. NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

IN CASE OF AN EMERGENCY ENSURE THAT THE POWER IS DISCONNECTED.

ANY INTERRUPTION OF THE PROTECTION CONDUCTOR INSIDE OR OUTSIDE THE APPARATUS, OR DISCONNECTION OF THE PROTECTIVE EARTH TERMINAL, IS LIKELY TO MAKE THE APPARATUS DANGEROUS. INTENTIONAL INTERRUPTION IS PROHIBITED.

FOR SAFETY REASONS THE BASE STATION MUST BE MOUNTED IN A 19" RACK WHICH HAS SAFETY COVERS ACCORDING TO EN 60065

Components marked ⚠ on the circuit diagram are critical for safety. They must only be replaced with specified part numbers.

Parts in this category also include those specified to comply with X-ray emission standards for units using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

When servicing units that use cathode ray tubes (CRTs), the cathode ray tubes themselves, the high voltage circuits and related circuits are specifically chosen so that they comply with recognized codes pertaining to X-ray emission.

Consequently, when servicing, replace the cathode ray tubes and other parts with specified parts only. Under no circumstances attempt to modify these circuits as any unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

Handle the cathode ray tube only when wearing shatterproof goggles and after discharging the high voltage completely.

Important

The wires in the mains lead are coloured in accordance with the following code:

GREEN AND YELLOW	-	EARTH
BLUE	-	NEUTRAL
BROWN	-	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire coloured GREEN AND YELLOW must be connected to the terminal on the plug marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN AND YELLOW.

The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured RED.

The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLACK.

Ensure that your equipment is connected correctly - if you are in any doubt consult a qualified electrician.

Table 1. Symbol explanation

Symbol	Colour	Explanation of Symbol
	Red	High voltage terminal at which a voltage, with respect to another terminal, exists or may be adjusted to 1000V or more.
	Yellow/Black	Live part.
	Yellow/Black	This marking indicates that the operator must refer to an explanation in the Instruction Manual, or that a specific component must be replaced by the component specified in the documentation for safety reasons.
	White/Black	Protective earth (ground) terminal.

FIRST AID

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with First-Aid theory and practises. The following information is not intended to be complete First-Aid procedures, it is brief and is only to be used as a reference. It is the duty of all personnel using the equipment to be prepared to give adequate Emergency First-Aid and thereby prevent avoidable loss of life.

Treatment of Electrical Shock

DO NOT TOUCH THE VICTIM WITH YOUR BARE HANDS until the circuit is broken.

SWITCH OFF. If this is not possible, PROTECT YOURSELF with some dry insulating material and pull the victim clear of the conductor.

Treatment of Electrical Burns

Extensive burned and broken skin.

a. Cover area with clean sheet or cloth. (Cleanest available cloth article).

b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.

c. Treat victim for shock as required.

d. Arrange transportation to a hospital as quickly as possible.

e. If arms or legs are affected keep them elevated.

If it is anticipated that qualified medical help will not be available for at least an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of luke warm water. Allow victim to sip slowly about 4 ounces (half glass) over a period of 15 minutes. Discontinue fluid if vomiting occurs. Do not give alcohol.

Less severe burns (1st and 2nd degree)

a. Apply cool (not ice cold) compresses using the cleanest available cloth article.

b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.

c. Apply clean dry dressing if necessary.

d. Treat victim for shock as required.

e. Arrange transportation to a hospital as quickly as possible.

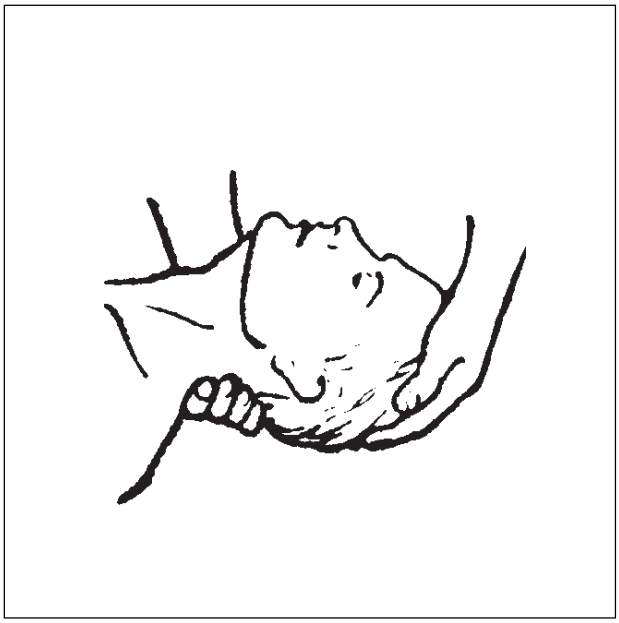

Figure 1

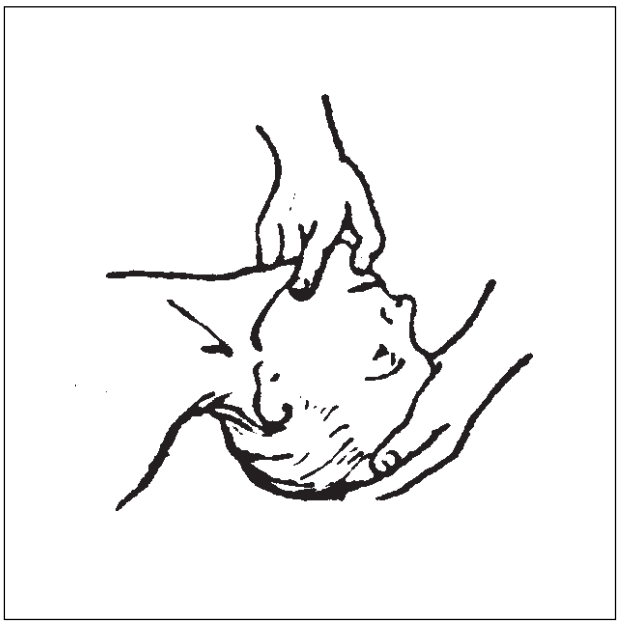

Figure 2

f. If arms or legs are affected keep them elevated.

The Expired Air Method of Artificial Respiration

1. Lay the patient on his back with his arms to his sides. If on a slope have the stomach slightly lower than the chest.
2. Make a brief inspection of the mouth and throat to ensure that they are clear of obvious obstruction.
3. Kneel on one side of the patient level with his head, place one hand under his neck and the other hand on top of his head (Fig.1).
4. Lift the neck and tilt the head back as far as possible.
5. Move the hand from under the neck and place it on the chin of the patient, the thumb between the chin and mouth, the index finger along the line of the jaw, the remaining fingers curled (Fig.2). Whilst positioning the patient, open your mouth and take deep breaths.
6. Using the thumb of the hand on the chin to keep the lips sealed, open your mouth wide and make a seal round the patients nose and blow into it (Fig.3).
7. After blowing, turn your head to observe the rise of the chest (Fig.4).
8. If no air enters the patients lungs, the nose may be blocked and the mouth should be opened using the hand on the chin; open your mouth wide and making a seal round his mouth blow into his mouth. Turn the head to observe the chest rise. This may be used as an alternative to blowing into the nose even when the nose is not blocked, but in this case the nose must be sealed either with the cheek or by moving the hand from the top of the head and pinching the nostrils. The head must be kept at full backwards tilt.
9. Start with ten quick deep breaths and then continue at the rate of twelve to fifteen breaths per minute. This should be continued until the patient revives or a doctor certifies death.
10. In case of facial injuries it may be necessary to do a manual method of artificial respiration (Holger Nielsen).
11. It is essential to commence artificial respiration without delay.
12. Send for medical assistance as soon as possible.

If victim is responsive:

a. keep him warm

b. keep him as quiet as possible

c. loosen his clothing

(a reclining position is recommended).

Figure 3

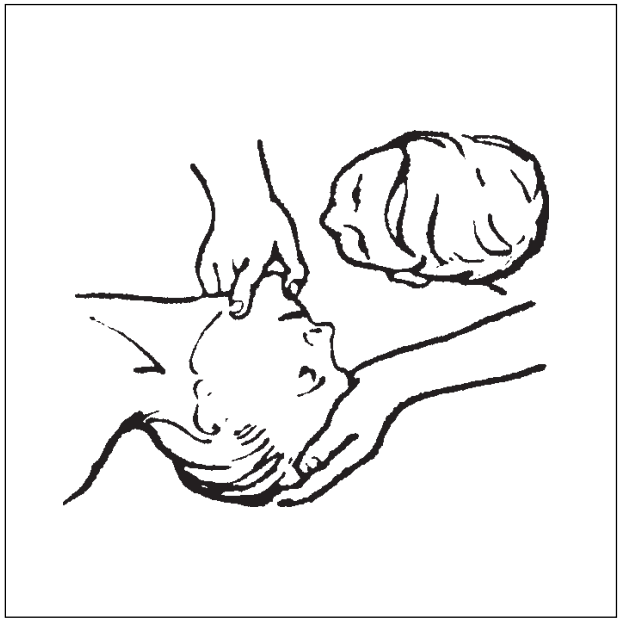

Figure 4

Section 1

Unpacking, Transport and Storage

Contents

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Unpacking

Inspect the shipping container for evidence of damage immediately after receipt. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the camera has been checked mechanically and electrically.

The shipping container should be placed upright and opened from the top.

Remove the cushioning material and lift out the contents.

The contents of the shipment should be checked against the packing list. If the contents are incomplete, if there is mechanical damage or defect, or if the camera does not perform correctly when unpacked, notify your Philips sales or service centre within eight days. If the shipping container shows signs of damage or stress, notify the carrier as well.

Transport

If the unit is being returned to Philips for servicing, try to use the containers and materials of the original packaging. Attach a tag indicating the type of service required, return address, model number, full serial number and the return number which will be supplied by your Philips service centre.

If the original packing can no longer be used, the following general instructions should be used for repacking with commercially available materials:

a. Wrap unit in heavy paper or plastic.

b. Use strong shipping container.

c. Use a layer of shock-absorbing material around all sides of the unit to provide firm cushioning and prevent movement inside container.

d. Seal shipping container securely.

e. Mark shipping container FRAGILE to ensure careful handling.

Storage

The unit may be stored (non-operating condition) in environments within the following limits:

Temperature:	-40°C to +70°C
Humidity:	Up to 90%
Altitude:	50,000 feet

When stored, the unit should be protected from temperature extremes which may cause condensation, and should also be protected from high levels of dust.

Section 2

Mounting the Units

Contents

Base Station 2-2

Base Station

The base station, which is required when the camera is used in the remote mode, must be mounted in a 19 inch rack for safety reasons. The base station dimensions are given in figure 2-1.

WARNING

THE BASE STATION MUST BE MOUNTED IN A 19 INCH RACK WHICH HAS SAFETY COVERS ACCORDING TO EN 60065.

WHEN TWO BASE STATIONS ARE MOUNTED ABOVE EACH OTHER THE MINIMUM DISTANCE BETWEEN THEM MUST BE 50mm OR THE RACK MUST BE FORCE-AIR COOLED.

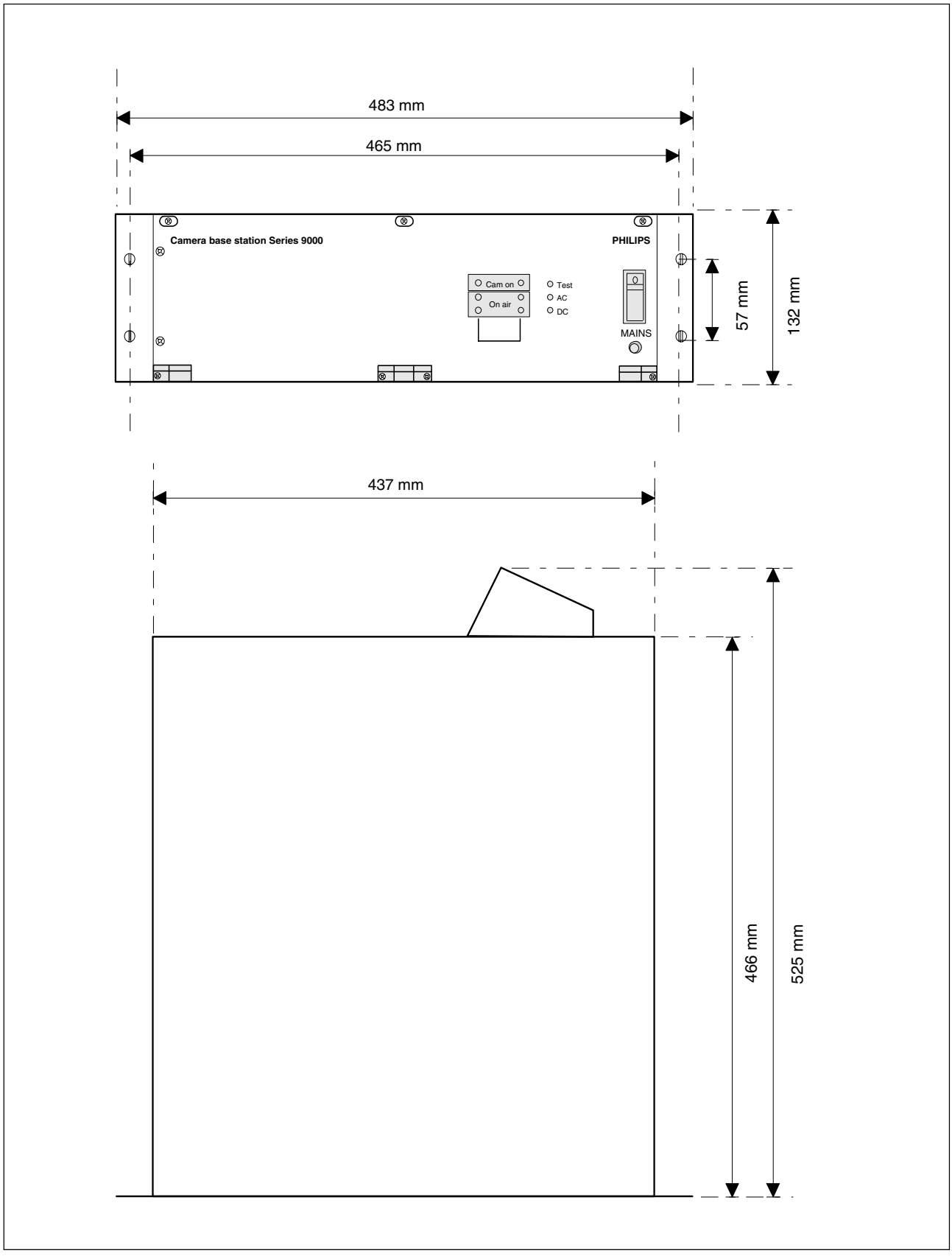

Figure 2-1 Base Station Dimensions

Section 3

Interconnections

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Interconnections 3-2

Base Station Power Supply

The power supply for the base station is dependent on the system under which the camera operates. All NTSC base stations are delivered with the operating voltage set to 115 Vac. All PAL base stations are delivered with the operating voltage set to 230 Vac.

Before connecting the power, check that the voltage of your mains power supply is the same as that indicated on your equipment. The frequency of the mains power supply must be between 47Hz and 63Hz.

WARNING
DISCONNECT THE EQUIPMENT FROM ALL VOLTAGE SOURCES WHEN RENEWING A FUSE.

CAUTION
The power plug must be inserted into an outlet that provides a protective earth connection. You must not use an extension cord or power cable without a protective conductor (earth).

CAUTION
Make sure that only fuses of the required current rating and of the specified type are used as replacements.

The two power supply fuses for the base station are located at the rear beside the mains power input socket. Their ratings are as follows: For
230V Line voltage :- 4 A Slow, 250 Vac For
115V Line voltage :- 10 A Slow, 250 Vac

Interconnections

The two-wire data bus is used to connect all control units in the Series 9000 control system. The data cable loops-through from one unit to the other. The order of connection is not important, however, the total length of the cables must not exceed 350 metres.

Each unit connected directly to the data bus, either base station, camera head or OCP, is identified by a number. In order to ensure, for example, that OCP 1 controls the camera connected to base station 1, the same unique number must be assigned to both the OCP 1 and base station 1. The assignment number is set internally on the units during installation.

The assigment number of units not connected directly to the bus, for example, a camera head connnected to a base station, must be set to 0. That is, the number on the camera head must be set to 0. The number on the base station, which is connected to the data bus, must be set to the number of the control panel that is to control it. A camera connected directly to the data bus must set its assigment number to the number set on the OCP that is to control it.

The MCP is also connected to the data bus, however, it is not necessary to set an internal assignment number. The camera or cameras to be controlled are selected on the MCP front panel itself when operating the unit. It is important to set a unique number for each base station/OCP or camera/OCP group as unpredictable control situations could arise otherwise.

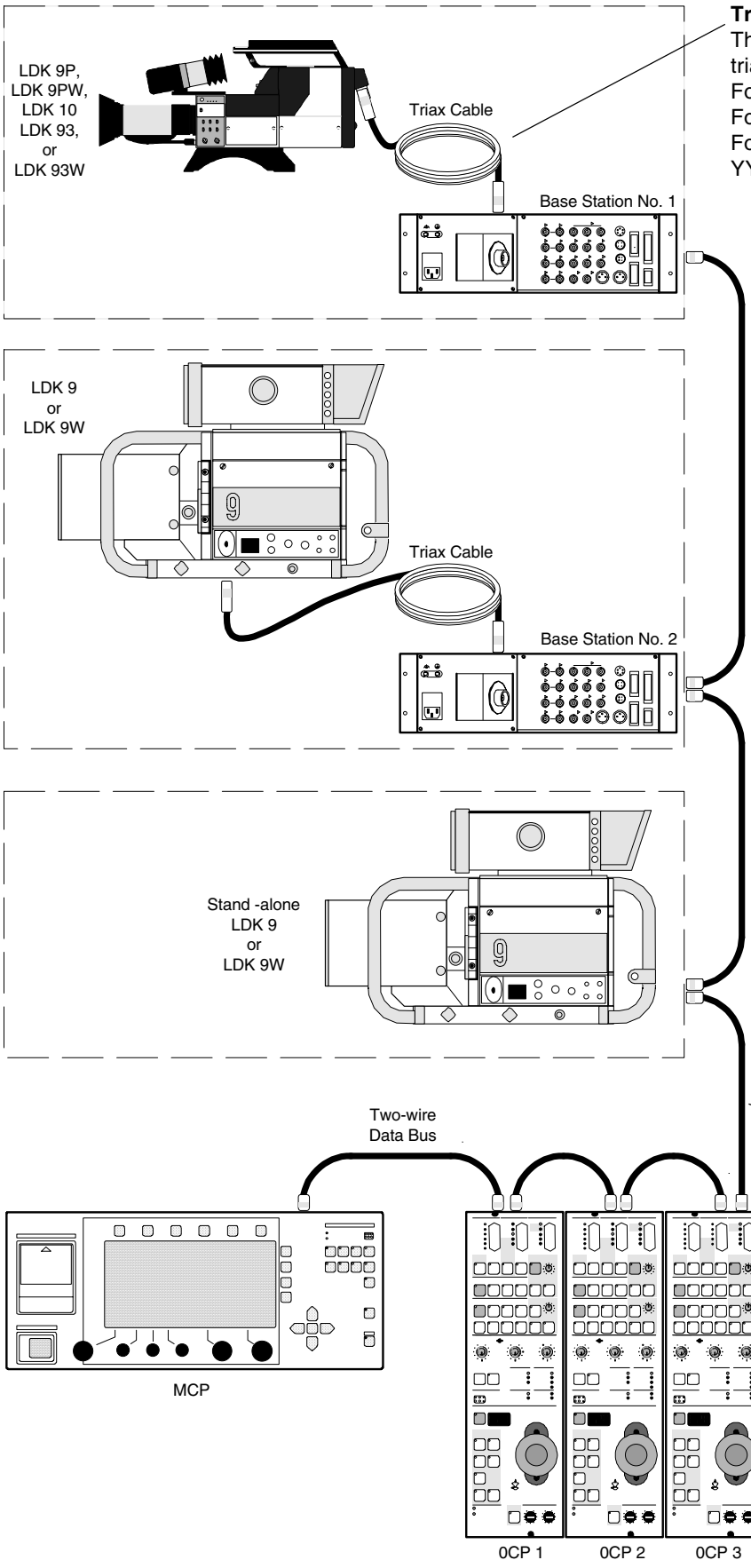
The assignment number for the base station is selected by a switch on the data board. Refer to Section 5 for more details on how to select this number.

In the figure a system is shown with three cameras. The system is set-up as follows:

a. The assignment number of the LDK 9P camera head is set to 0. The assignment number of base station 1 is set to 1. The assignment number of OCP 1 is set to 1. OCP 1 now controls the LDK 9P camera head.

b. The assignment number of the LDK 9 camera head connected to base station number 2 is set to 0. The assignment number of base station 2 is set to 2. The assignment number of OCP 2 is set to 2. OCP 2 now controls the remote LDK 9 camera head.

c. The assignment number of the stand-alone LDK 9 camera head is set to 3. The assignment number of OCP 3 is set to 3. OCP 3 now controls the stand-alone LDK 9 camera head.



Triax Cable
The order numbers for Fischer camera triax cable are:
For 8mm - LDK 8107 / YY
For 11mm - LDK 8109 / YY
For 14mm - LDK 8112 / YY
YY : 01 = 10m, 10 = 100m, 00 = 1000m

Data Cable
The order number for the 4-pin to 4-pin data cable is:
LDK 8113 / XX.
XX: 01 = 01m, 10 = 10m, 99 = 100m

Section 4

Board Access and Location

Contents

Access and Location 4-2

Access and Location

To gain access to the printed circuits boards at the front of the base station, loosen the three captive screws indicated in figure 4-1 and open down the front cover. To gain access to the Aux. Receiver module, the HP/LP Power Filter module, or the Front End Mux. module, unscrew and remove the fourteen screws indicated in figure 4-2 and remove the rear top cover. The locations of the various boards and modules are shown in figure 4-3.

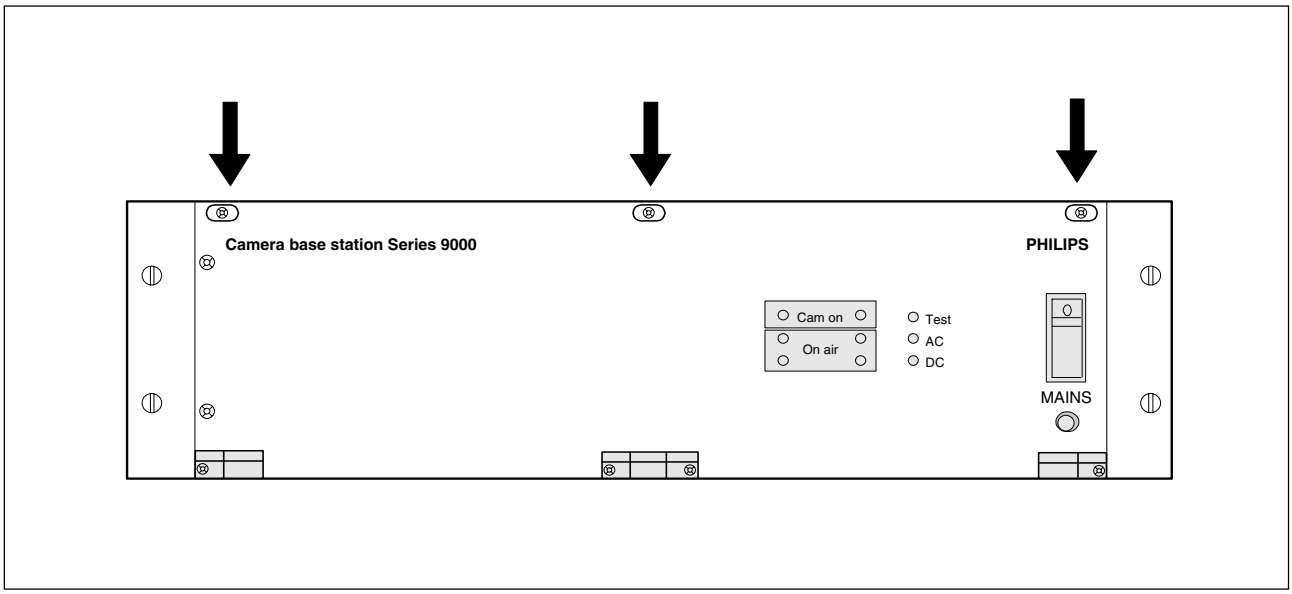


Figure 4-1 Opening the Front of the Base Station

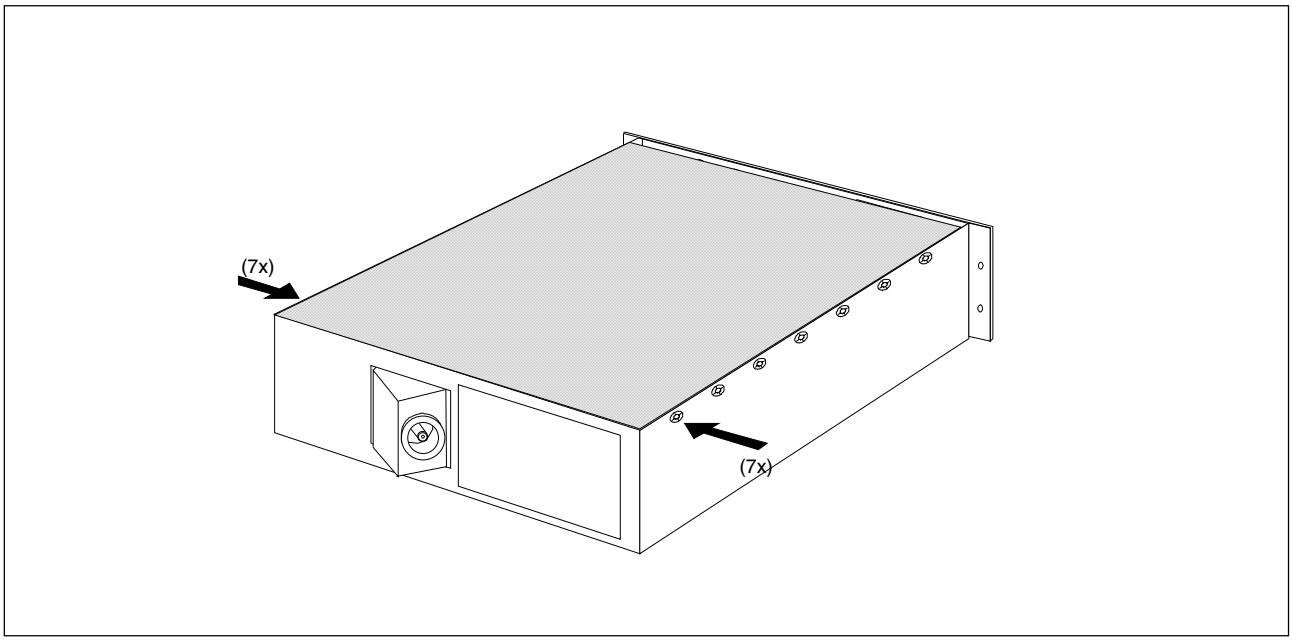


Figure 4-2 Opening the Top of the Base Station

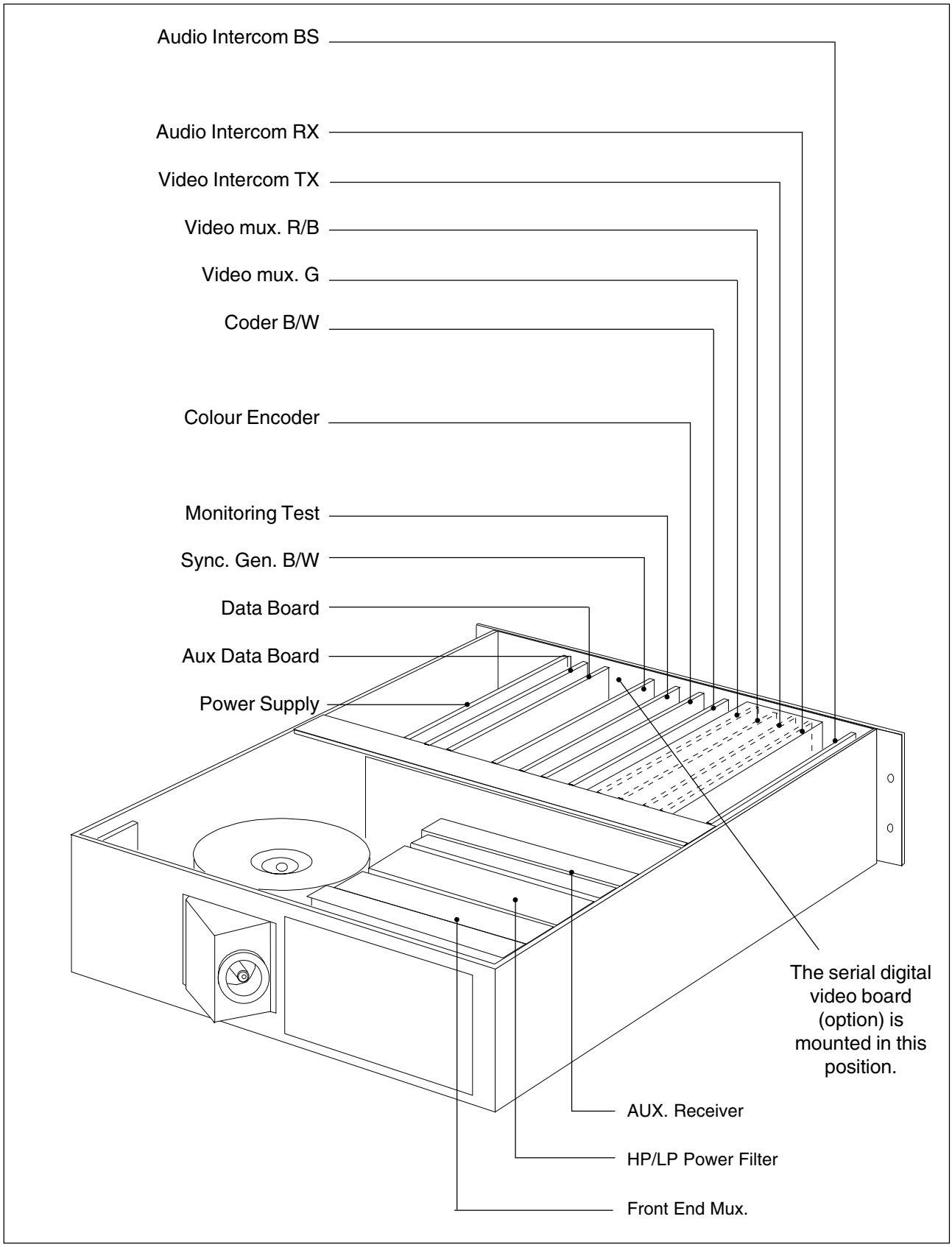


Figure 4-3 Board Location - Base Station

Section 5

Internally Selectable Functions

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Base Station

Some functions in the base station can be pre-selected to meet the particular requirements of your studio. This requires the front cover to be opened and in some cases the removal of printed circuit boards. Remember to turn off the power supply before removing or replacing boards. The required functions are selected by the placement of jumpers. The asterix (*) indicates the position of the jumper when the base station leaves the factory.

Caution

Some switches and jumpers are only for factory use. Do not change their position as this could result inthe non-operation of the base station.

Camera Number Selection

In a multi-camera system each control panel must be assigned to one particular camera only. This is done by setting a unique camera number on each control panel. The same number must then be selected inside the base station of the camera you wish to control.

The assignment number for the base station is selected internally by a switch on the data board. Proceed as follows:

a. Open down the front of the base station.

b. Unclip the data board cover to expose the switches.

c. Using a small screwdriver, set the arrow of the camera number switch to the number required.

d. Close the data board cover and the base station front cover.

Figure 5-1 shows the front of the base station with the cover open.The switch is located on the data board.

The base station is delivered with the switch set to 1. It is only necessary to change this number if you have more than one base station.

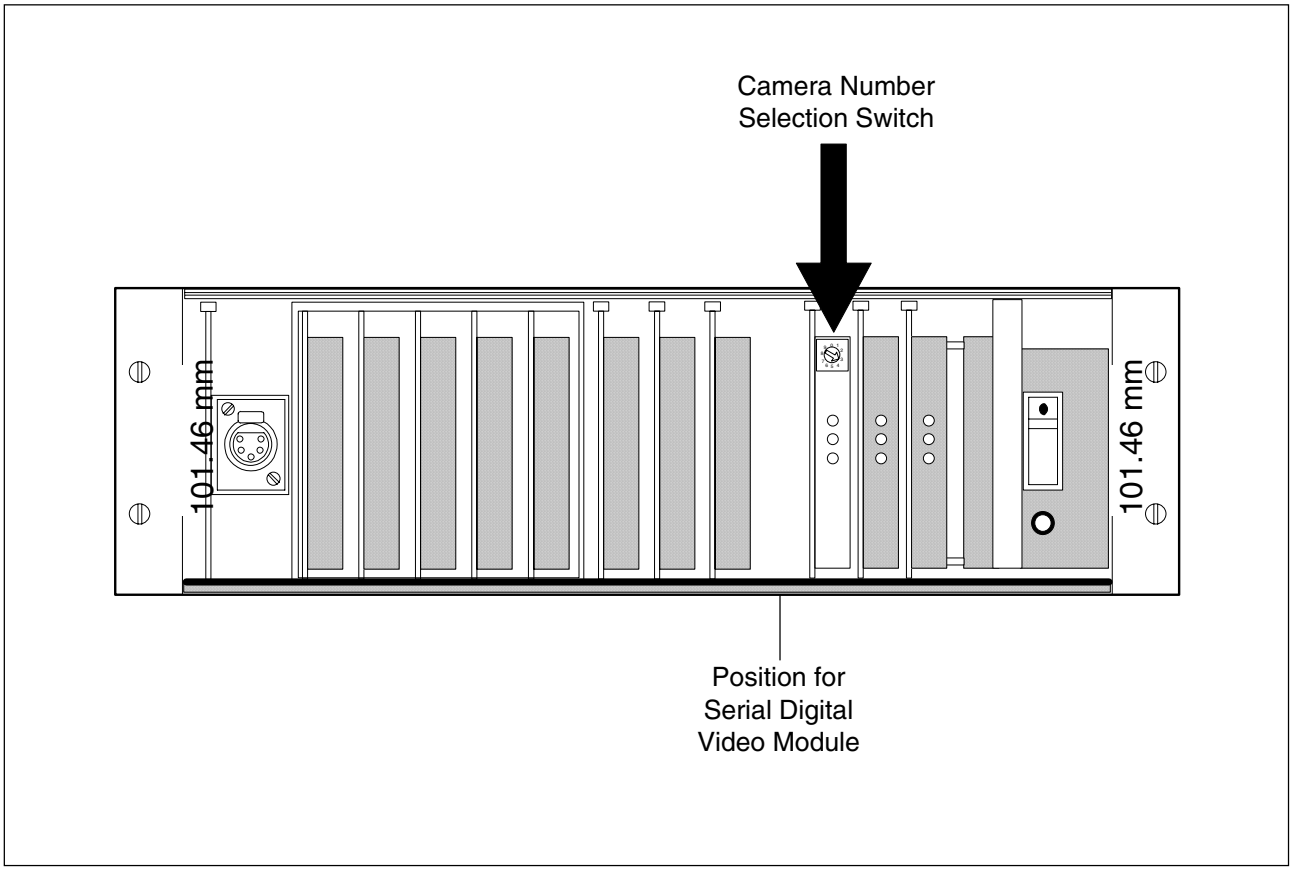

Figure 5-1 Base Station - Front Cover Open

Audio and Intercom Jumpers

Table 5-1 lists the functions which can be changed on the audio/intercom board. Figure 5-2 shows the location of the jumpers on the audio/ intercom board.

Signalling Switching Method

The call, on-air and isolate signals can be switched in several difference ways. The different methods are selected on the data and aux. data boards. Table 5-2 lists the jumpers, figures 5-3 and 5-4 show their locations.

Diverse Jumpers

Table 5-3 lists diverse functions which can be changed on the Coder B/W, NTSC encoder and Data boards. The location of the jumpers on these boards is shown in figures 5-3, 5-5 and 5-6.

No MCP

When no MCP is available it might occur that some functions are in an undesireable position, for example, a lock on the upper part of the OCP. To prevent this happening a dip switch on the base station data board (S6) can be set when an MCP is not available. Refer to section 8 (Application Guide) of this Installation Manual. The default setting for the dipswitch is MCP available. The functions affected by this switch and their state is as follows: (in case the dipswitch is set to "MCP not available")

Variable black stretch ..... YES
Variable gamma ..... YES
Variable Flare ..... YES
Saturation ..... YES
White clipper ..... YES
Knee slope ..... YES
Knee point ..... YES
Iris normal/reverse ..... NORMAL
OCP lock upper/total ..... TOTAL
Lens ..... LOCAL
Intercom ..... SYSTEM
Audio ..... EXTERNAL
Aspect Ratio ..... EXTERNAL
Aspect Ratio 3:4

Table 5-1 Internally Selectable Functions - Audio/Intercom Base Station

Function	Unit/Location	Switch/Jumper	Positions	Result
ENG Intercom microphone phantom power	Audio/Intercom board (BS)	S100	ab* ac ad	None +12V -12V
ENG Intercom microphone amplification	Audio/Intercom board (BS)	S101	ab* ac	40dB 0dB
Studio intercom system selection	Audio/Intercom board (BS)	S4 to S8 S204 to S207 S700 to S702	ab* ac	4-wire 2-wire
Intercom mode gain selection	Audio/Intercom board (BS)	S1 to S3 S201 to S203 S501	ab* ac	4-wire +6dBu 4-wire 0dBu 2-wire
Intercom isolate mode	Audio/Intercom board (BS)	S302 S301	ab* ac off on	Remote (MCP) Local Local : intercom Local : isolate
Channel Function	Audio/Intercom board (BS)	S300 S500	ab* ac ab* ac	Floor mic. Private data Program Private data
Audio output level	Audio/Intercom board (BS)	S400 S600	ab* ac ab* ac	Audio 2 +6dBu Audio 2 0dBu Audio 1 +6dBu Audio 1 0dBu

(* position on delivery)

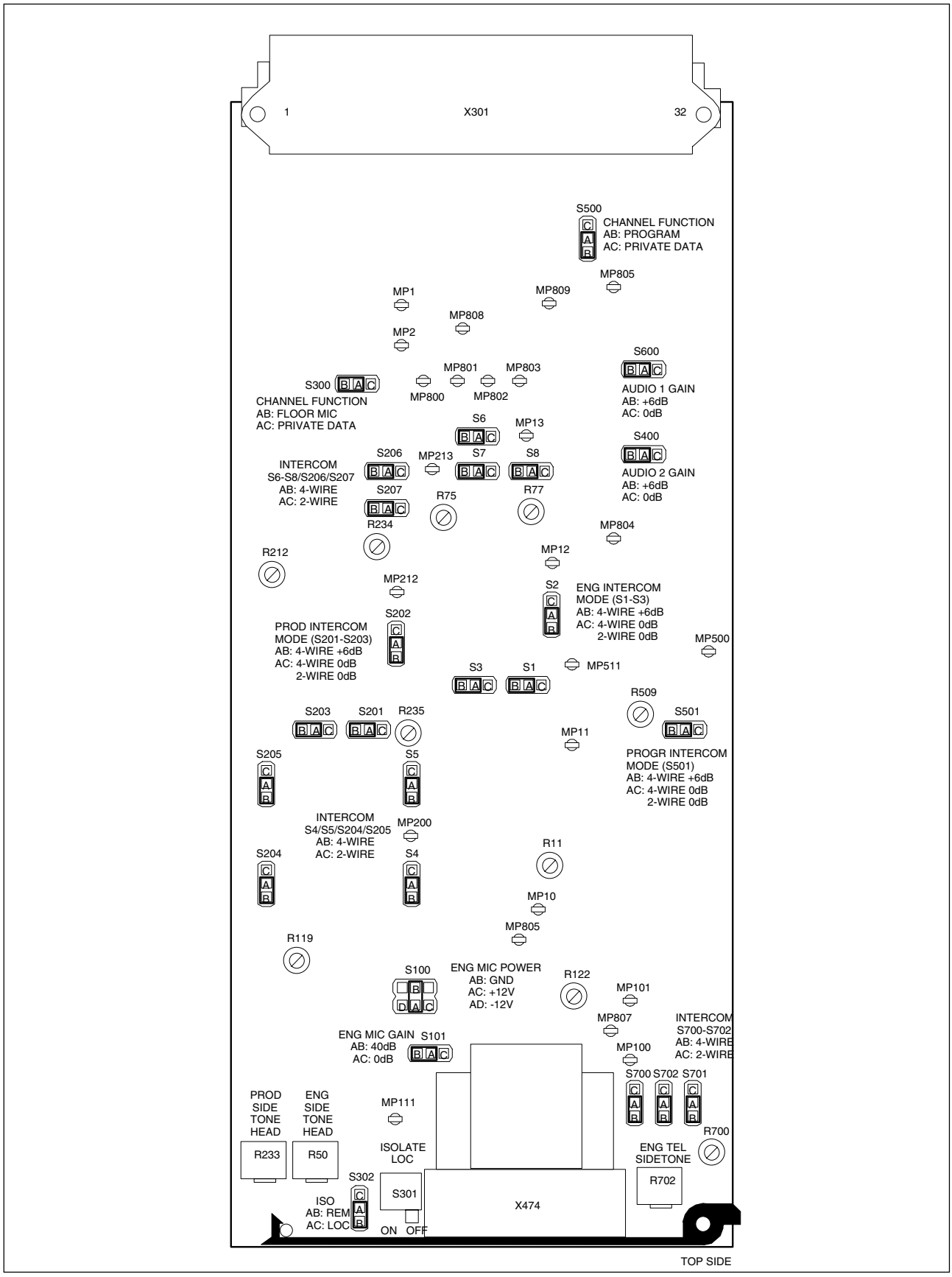

Figure 5-2 Audio/Intercom Board Base Station - Jumper Location

Table 5-2 Signalling Switching Methods Base Station

Function	Unit/Location	Switch/Jumper	Positions	Result
Iso signal (yellow on-air) switching method	Data Board Base Station	S7	ab* ac	Make/break loop 5 to 24V signal
	Aux. Data Board Base Station	S3	ab* ac	Make/break loop 5 to 24V signal
On-air signal switching method	Data Board Base Station	S8	ab* ac	Make/break loop 5 to 24V signal
	Aux. Data Board Base Station	S4	ab* ac	Make/break loop 5 to 24V signal
Call signal switching method	Data Board Base Station	S9	ab* ac	Make/break loop 5 to 24V signal
	Aux. Data Board Base Station	S5	ab* ac	Make/break loop 5 to 24V signal

The Data board and the Aux. Data board switching inputs are in parallel. Therefore, S7 and S3, S8 and S4, and S9 and S5 must be placed in the same position

(* position on delivery)

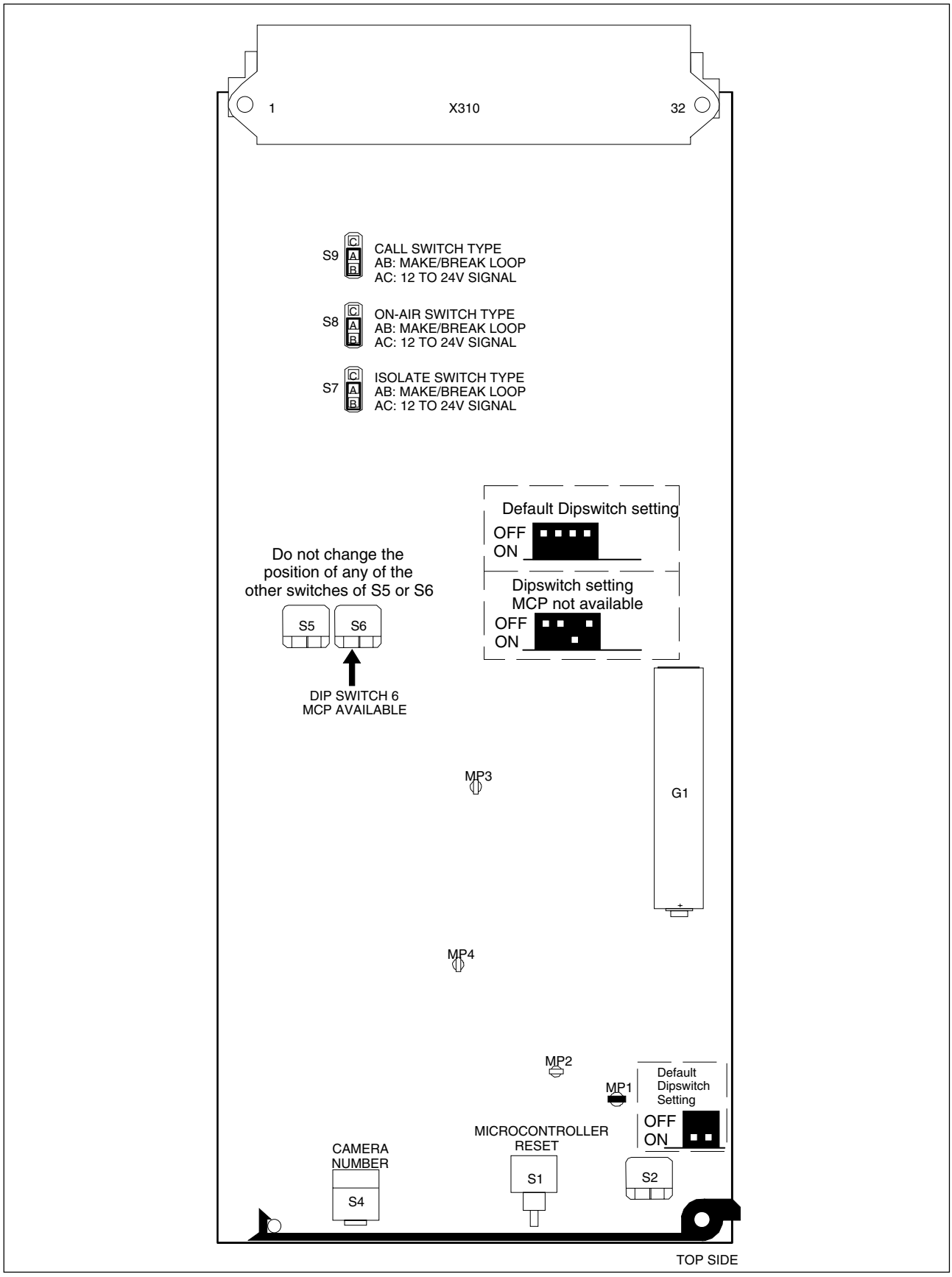

Figure 5-3 Data Board Base Station - Jumper Location

Table 5-3 Diverse Internally Selectable Functions - Base Station

Function	Unit/Location	Switch/Jumper	Positions	Result
R, G and B signals with or without Sync. signal	Coder B&W Board Base Station (Fig. 5-5)	S265	ac	No Sync. on R, G or B
		S265 S266	ab ac	Sync. signal only on G
		S265 S266	ab* ab*	Sync. signal on R, G and B
Y monitoring	Coder B&W Board Base Station (Fig. 5-5)	S660	ab* ac	Without delay With delay
Notch filter	Coder B&W Board Base Station (Fig. 5-5)	S557	On Off	Notch on Notch off
I2C	Coder B&W Board Base Station (Fig.5-5)	S300 S330 S335	ab	Local
		S300 S330 S335	ac*	Remote
Colour Bar	Coder B&W Board Base Station (Fig.5-5)	S336	ab*	Base Station Colour Bar
		S336	ac	Camera Colour Bar
NTSC blanking	Colour encoder NTSC (Fig. 5-6)	S1	ab* ac	Narrow blanking Wide blanking
Remote timing	Data Board (Fig. 5-3)	S2	On Off	Timing controlled on MCP Timing controls on Mon./test board

(* position on delivery)

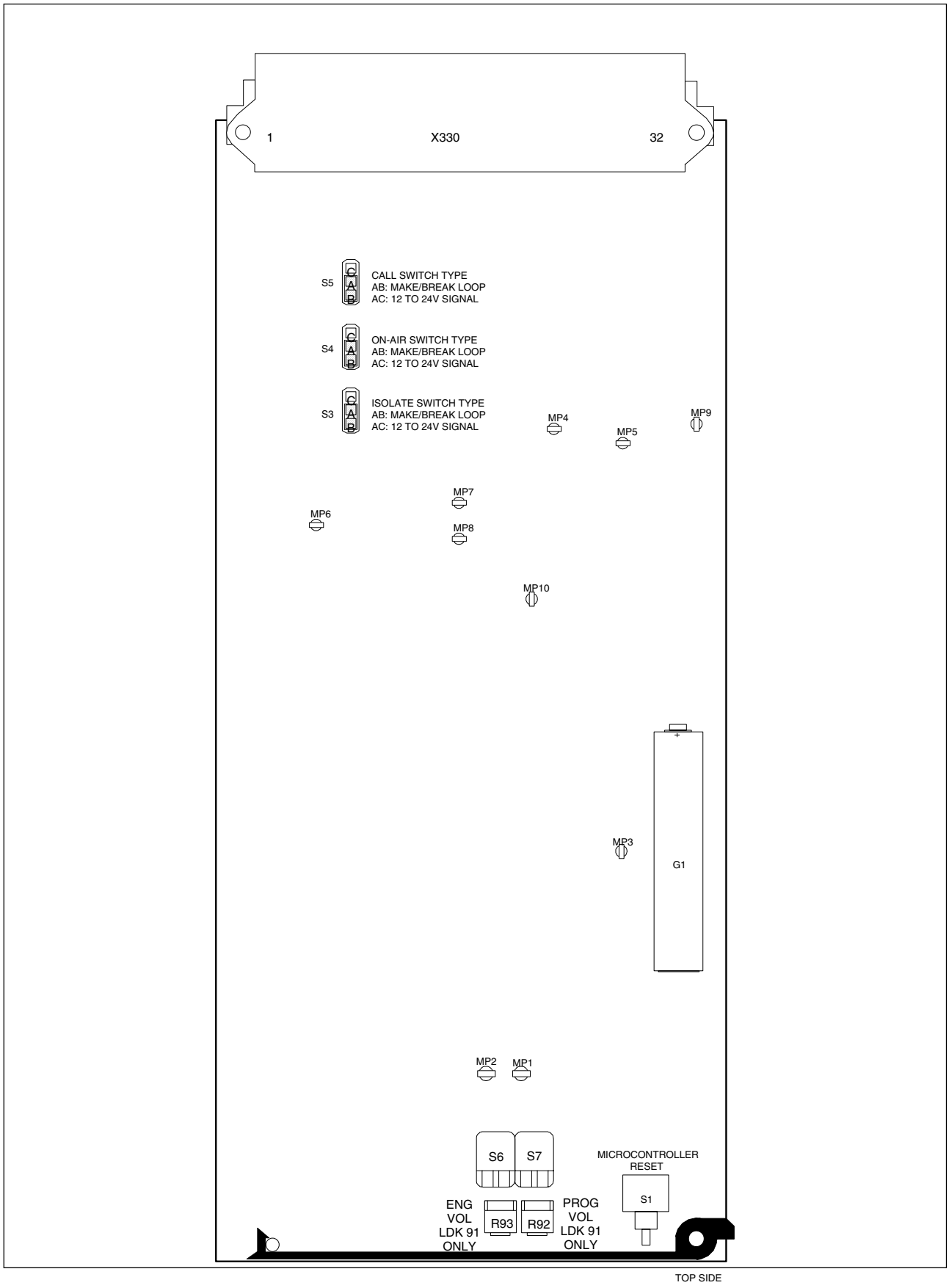

Figure 5-4 Aux. Data Board Base Station - Jumper Location

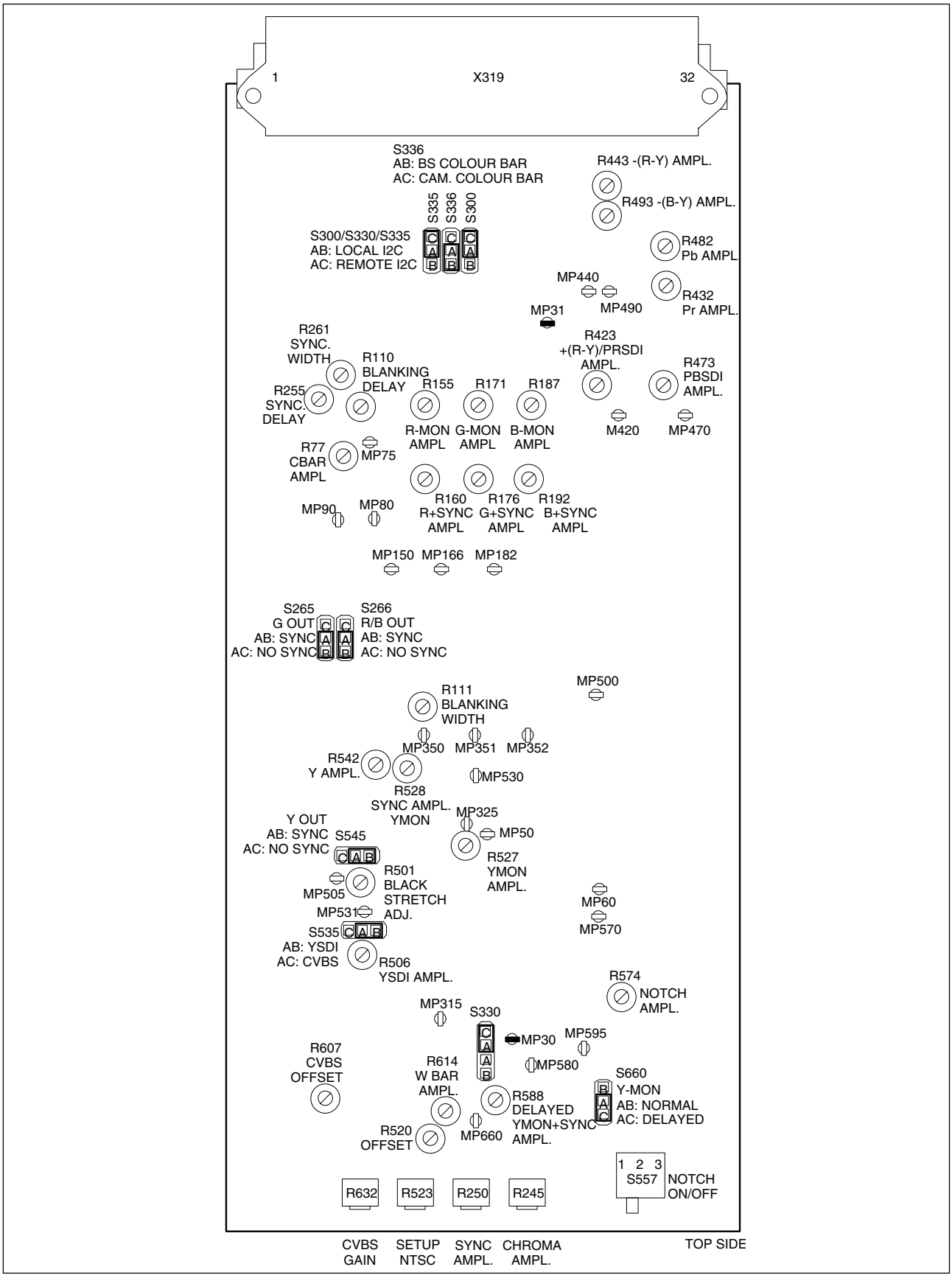

Figure 5-5 Coder B & W Board Base Station - Jumper Location

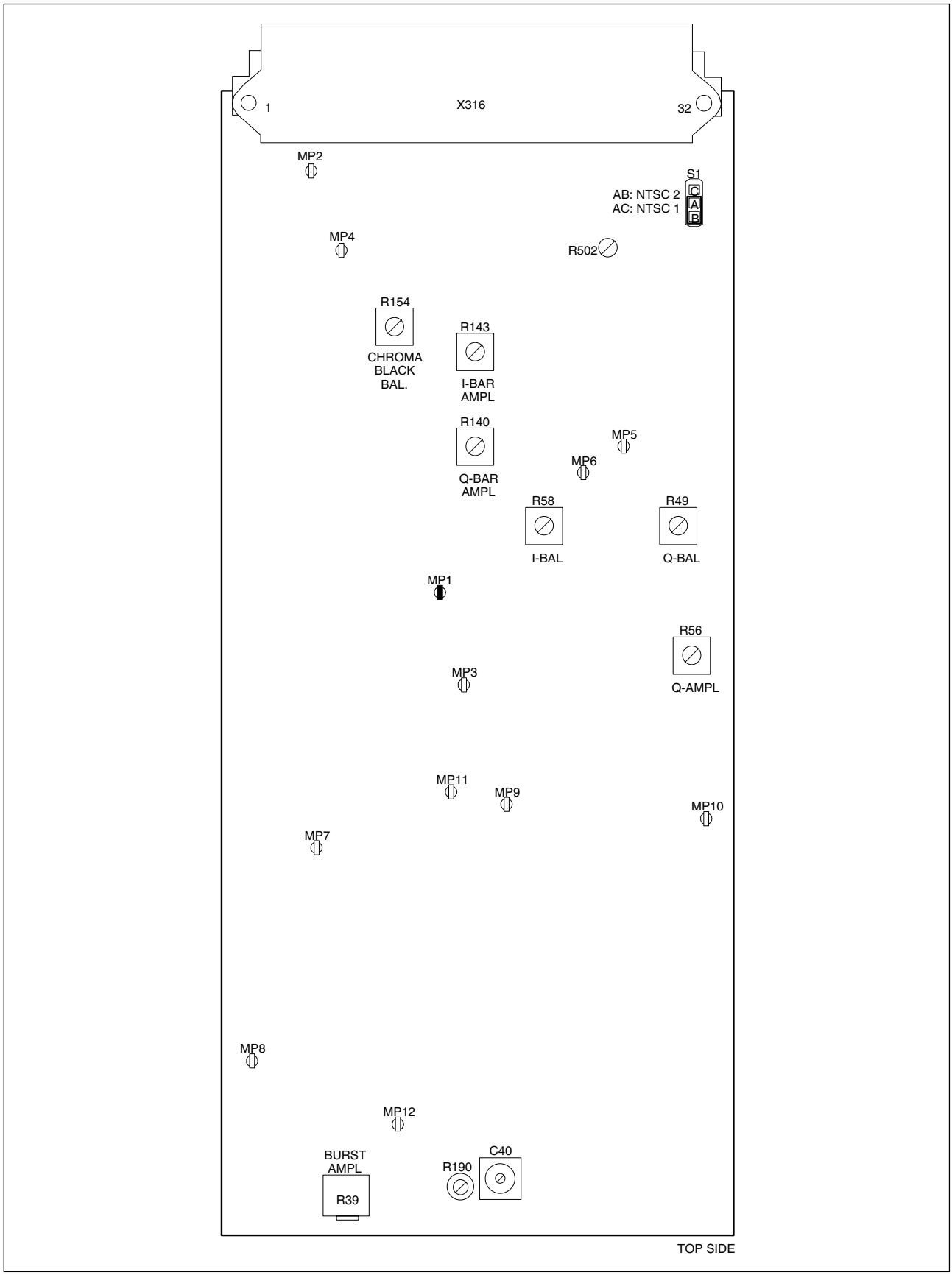

Figure 5-6 Colour Encoder NTSC Board Base Station - Jumper Location

Section 6

System Adjustments

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Video Adjustments 6-2
Intercom Side Tone Adjustment 6-2
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Camera System Adjustments

The camera head and base station may require some adjustments to lock the camera system to a reference signal. In some cases the base station video outputs may have to be adjusted.

Genlocking

To genlock the base station adjust the subcarrier phase and the H-phase on the MCP.

The subcarrier phase and the H-phase can also be adjusted on the monitoring/test board which is located behind the front cover of the base station. To control the timing on the monitoring/ test board the position of switch S2 on the Data board of the base station must be in the OFF position (see table 5-3).

Video Adjustments

Tolerances between some camera head/base station combinations may require the base station video output to be adjusted. The instructions for carrying out these adjustments are contained in table 6-1.

Before carrying out these adjustments make sure that the camera head is correctly adjusted. For complete adjustment instructions refer to the service manual.

Intercom Side Tone Adjustment

The adjustment of the intercom side tone for the cameraman's headset and floor manager's headset is carried out either on the audio/intercom camera board or the audio/ntercom base station board depending on whether a two-wire or four wire system is in use.

With a two-wire system the side tone potentiometers on the audio/intercom camera board (R750 and R752) are closed and the adjustment takes place on the audio/intercom base station board. Potentiometer R50 adjusts the ENG channel; potentiometer R233 adjusts the PROD channel.

With a four-wire system the side tone can be adjusted as described above for the two-wire system, or the potentiometers on the audio/intercom base station board (R50 and R233) can be closed and the potentiometers on the audio/intercom camera board (R750 and R752) can be adjusted.

To adjust the the side tone to the ENG telephone connector of the base station use potentiometer R702 on the audio/intercom base station board.

ENG and PROGR Volume

When a LDK 91 or large lens adapter is connected to the base station, the ENG and PROGR volume can be adjusted with potentiometers R93 and R92 respectively on the Aux. Data board of the base station.

Table 6-1 Video Adjustment

Step	Action	Measurement Point	Adjustment Point	Required Result

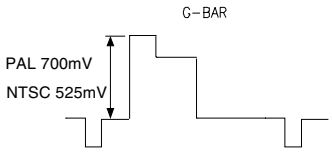
On OCP set controls to the following positions:

TEST	:	OFF
MONITORING	:	G
KNEE	:	OFF
BL. STRETCH	:	OFF
GAIN	:	0dB
EXPOSURE	:	NOM.
CONTOUR	:	OFF
FILTER	:	4 (CAP)
COLOUR BALANCE	:	3200K
PAINTING	:	MID-POSITION
AUTO IRIS	:	OFF

Green Video Channel

1. Place the video mux. G board on service extender and switch on power.
2. On OCP set the TEST switch to BARS.
3. Connect oscilloscope to measurement point and adjust AGC potentiometer for an amplitude of 700mV (PAL) or 525mV (NTSC).

   X305 - B22 R57

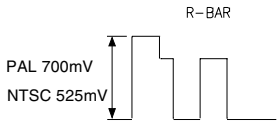


4. Switch off power. Return video mux. G board to its position in the base station.

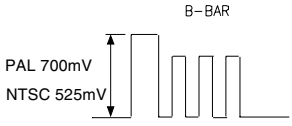
Red and Blue Video Channels

1. Place video mux. R/B board on service extender and switch on power.
2. Connect oscilloscope to measurement points and adjust the AGC potentiometers for an amplitude of 700mV (PAL) or 525mV (NTSC) for red and blue signals.

   X306 - A23(R) R26



   X306 - A28(B) R27



3. Switch off power. Return video mux. R/B board to its position in the base station.

Section 7

Connectors

Contents

Base Station Front Panel 7-2
Base Station Rear Panel 7-3

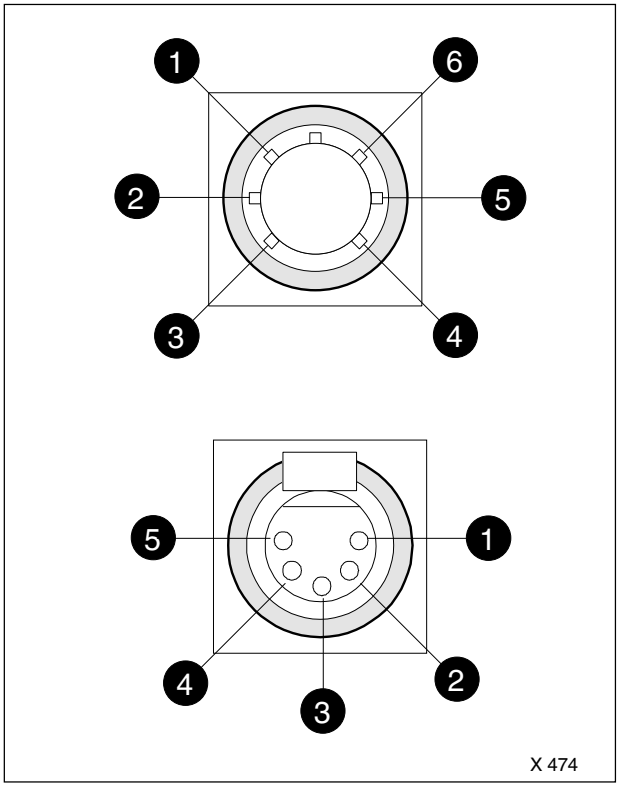


Figure 7-1 Base Station Headset Connector - Panel View

Base Station Front Panel

Base Station Headset Connector

Tuchel 6-pin female

1. Telephone left
2. Telephone return
3. Microphone
4. Microphone return
5. Telephone right
6. Telephone return

XLR 5-pin female

1. Microphone return
2. Microphone
3. Telephone return
4. Telephone left
5. Telephone right

Microphone level -64dBu

Microphone impedance 200 ohm

Telephone level +6dBm nominal

Telephone output impedance <50 ohm

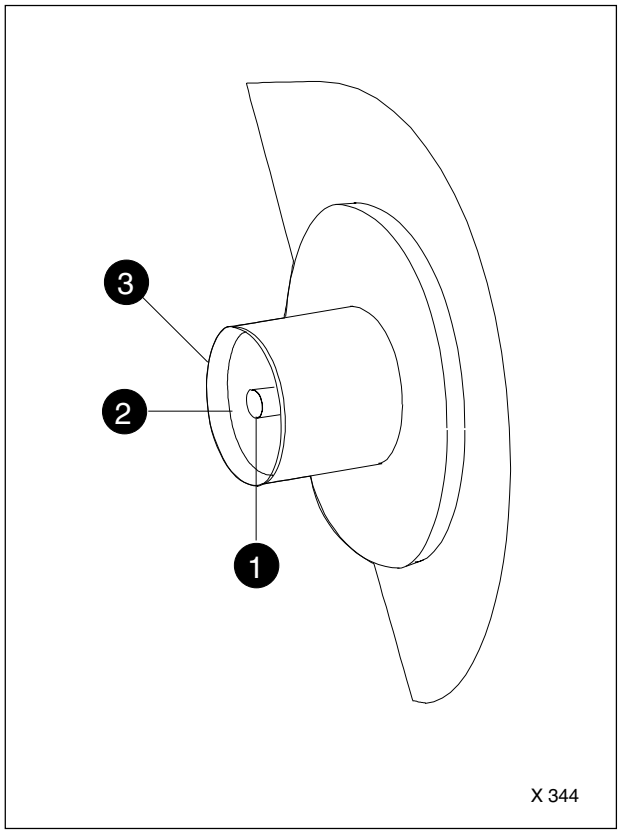


Figure 7-3 Triaxial Connector - Panel View

Base Station Rear Panel

Triaxial Connector

Fischer 3-pin

1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Base station housing

Trilock 3-pin

1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Base station housing

ARD 3-pin

1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Base station housing

Lemo 3-pin

1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Base station housing

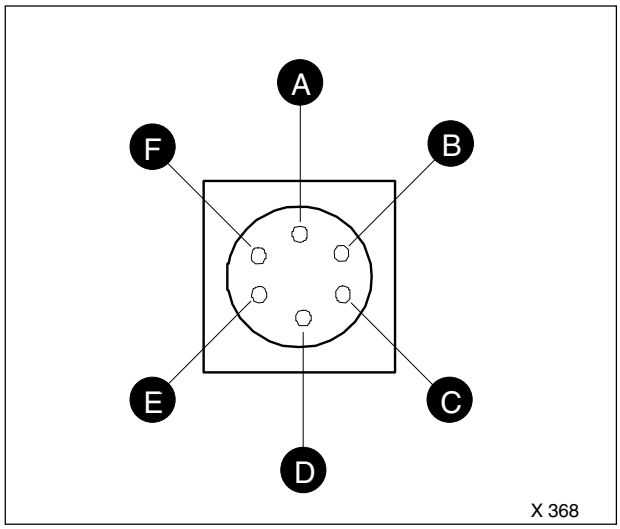


Figure 7-4 WFM Connector - Panel View

WFM Connector

6-pin male, shielded cable

A. Parade

B. Parade return

C. Prev Out Ext

D. Prev Out Ext return

E. Stair step H/3 (level:+5, 0, -5V; imp.: 100ohm)

F. Stair step return

Shield of cable directly to the connector housing.

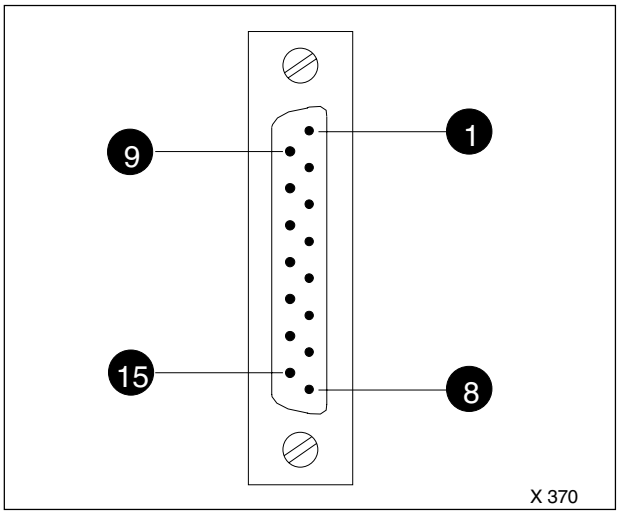


Figure 7-5 Signalling Input/output Connector - Panel View

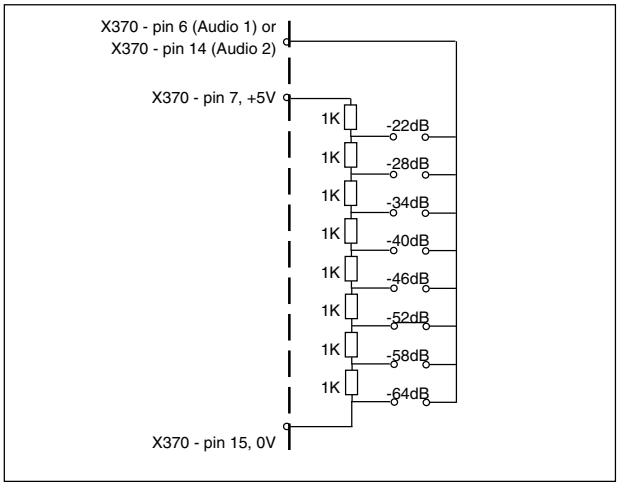


Figure 7-6 Suggested Circuit for Audio 1 Level Control

Signalling Input/output Connector

15-pin male, shielded cable

1. Prev. out ext. (relay contact < 10 ohm)
2. Call out ext. (relay contact < 10 ohm)
3. Iso in ext. (12-24V DC/AC or switch contact)
4. On-Air in ext (12-24V DC/AC or switch contact)
5. Call in ext. (12-24V DC/AC or switch contact)
6. Audio 1 level (analogue input voltage 0V to +5V, see figure 7-19)

   - 64 dB ------ 0V
   - 58 dB ------ +0.7V
   - 52 dB ------ +1.3V
   - 46 dB ------ +1.9V
   - 40 dB ------ +2.5V
   - 34 dB ------ +3.1V
   - 28 dB ------ +3.7V
   - 22 dB ------ +4.3V

7. +5 Vdc; OCP
8. Housing
9. Prev. out ext. return
10. Call out ext. return
11. Iso in ext. return
12. On-Air in ext. return
13. Call in ext. return
14. Audio 2 level (see pin 6)
15. GND

Shield of cable to the pin marked housing.

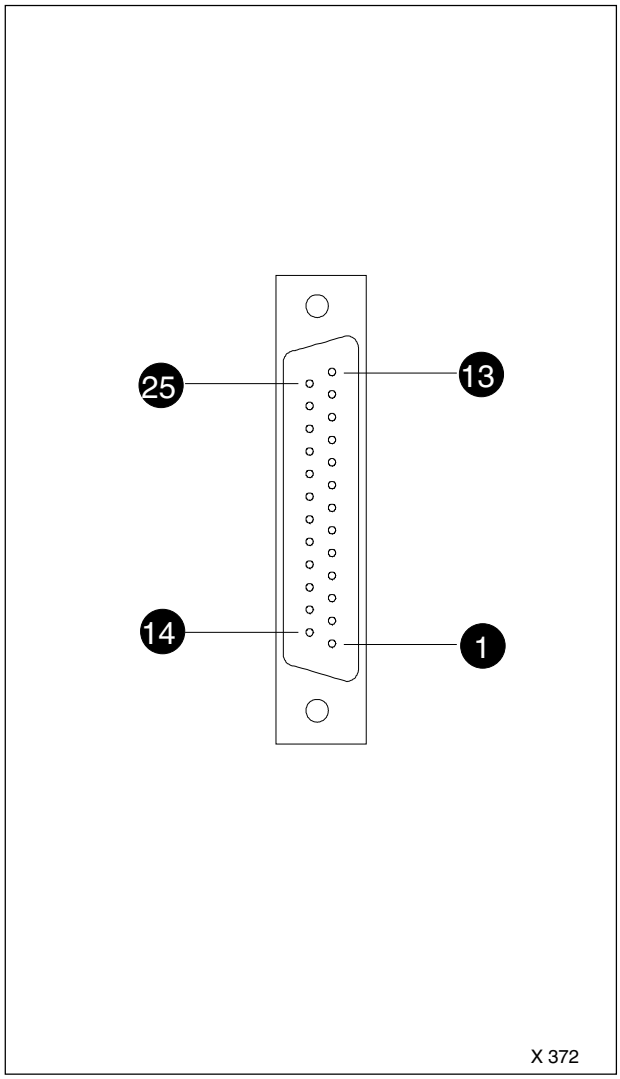


Figure 7-7 Operational Control Panel Connector - Panel View

Operational Control Panel Connector

25-pin female, shielded cable

1. +V Ref
2. +5V OCP
3. Data out OCP
4. Clock
5. OCP not connected
6. R black
7. G black
8. B black
9. M black
10. Spare
11. Housing
12. 0V OCP
13. -V Ref
14. +V Ref
15. +12V OCP
16. Data in OCP
17. Serv. req.
18. Contours
19. R gain
20. G gain
21. B gain
22. Iris control
23. Housing
24. 0V OCP
25. -V Ref

Shield of cable to the pin marked housing.

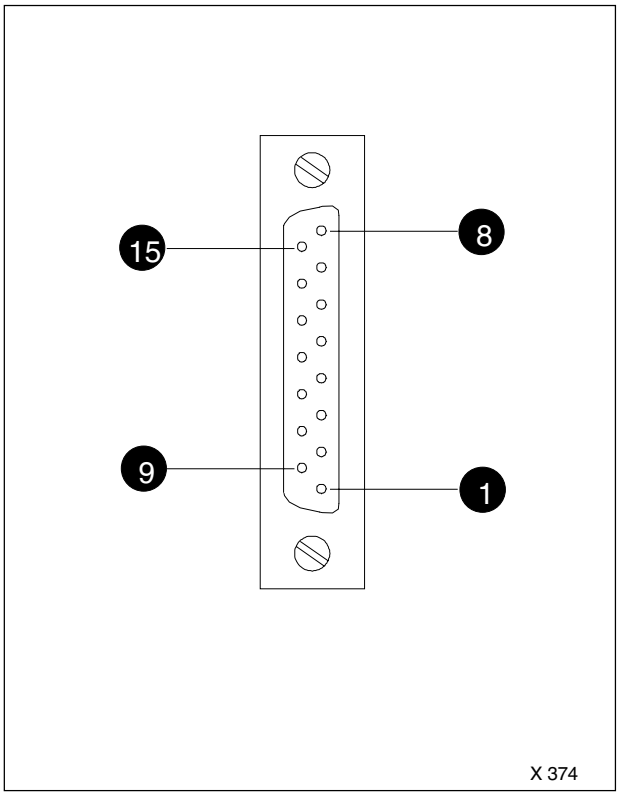


Figure 7-8 Intercom Connector - Panel View

Intercom Connector

15-pin female, shielded cable

1. Prod. out (2-wire in/out)
2. Prod. in (4-wire only)
3. Prod. in shield (4-wire only)
4. ENG in (4-wire only)
5. ENG out (2-wire in/out)
6. Progr. in (4-wire only)
7. Progr. in shield (4-wire only)
8. Housing
9. Prod. out return (2-wire in/out)
10. Prod. in return (4-wire only)
11. ENG in shield (4-wire only)
12. ENG in return (4-wire only)
13. ENG out return (2-wire in/out)
14. Progr. in return (4-wire only)
15. Housing

Shield of cable to the pin marked housing.

4-wire

Output signals: level +6dBu or 0dBu selectable
output impedance 50ohm (max)

Input signals: level +6dBu or 0dBu selectable
impedance 9 Kohm (min)

2-wire: level 0dBu

load impedance: 200 ohm

maximum DC level = 40 V

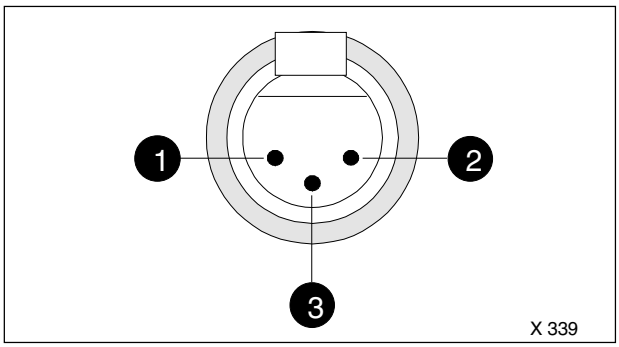


Figure 7-9 Audio Output Connector - Panel View

Audio Output Connector

XLR 3-pin male

1. Shield
2. Audio X
3. Audio Y

Level : +6dBu or 0dBu switchable

Load Impedance: > 150 ohm, symmetrical

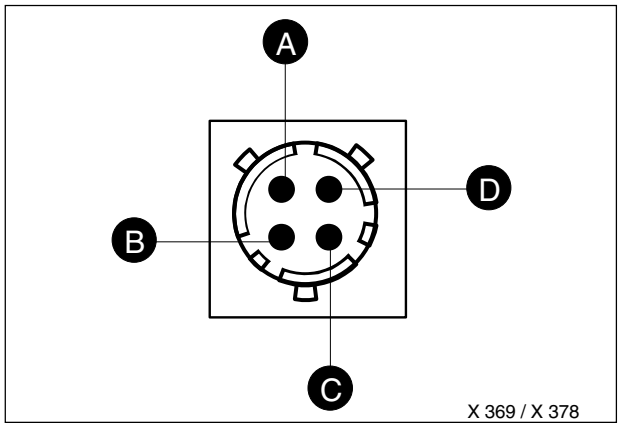


Figure 7-10 Data Connector - Panel View

Data Connector

4-pin male, shielded cable

A. Data

B. Data not

C. Not connected

D. Shield

Shield of cable to pin marked shield.

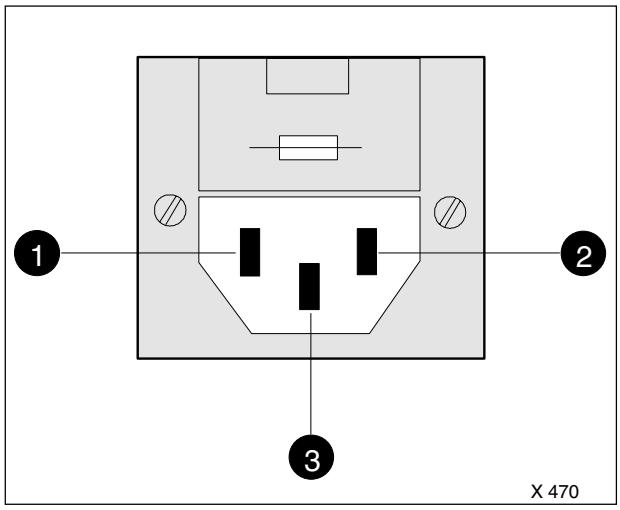


Figure 7-11 Mains Input Connector - Panel View

Mains Input Connector

Eurostyle 3-pin male

1. Neutral
2. Line
3. Earth

Mains input voltage:	220 Vac or 115 Vac
Mains frequency:	47 to 63 Hz
Power consumption:	320 Watt

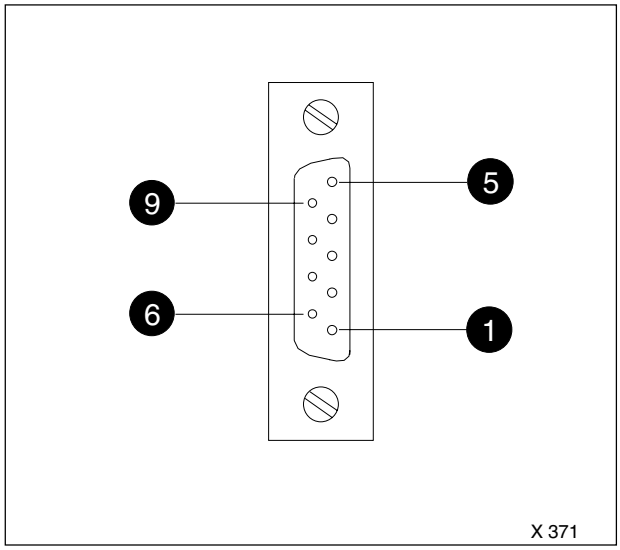


Figure 7-12 Auxiliary Connector - Panel View

Auxiliary Connector

9-pin female, shielded cable

1. +5V
2. AN 0
3. PRIVATE DATA OUT
4. PRIVATE DATA IN
5. Housing (Shield of cable to this pin)
6. GND
7. AN 1
   For aspect ratio switching on wide screen sensor cameras: 16:9 -0.5 to +0.8Vdc
   4:3 +2.4 to +5.5Vdc
8. PRIVATE DATA OUT RET
9. PRIVATE DATA IN RET

Table 7-1 Cable Connector Part Numbers

Panel Connector	Type	Male Cable Number	Female Cable Number
Data	4-pin male	—	2411 020 12025
Headset (Tuchel)	6-pin female	2422 026 01712	—
Headset (XLR)	5-pin female	2422 026 03393	—
WFM	6-pin male	—	2411 020 12026
Signalling	15-pin male	--	2411 022 05168
		15-p Cable Hood	2411 021 02465
Control	25-pin female	2411 022 05203	—
		25-p Cable Hood	2411 021 02466
Aux	9-pin female	2411 022 05284	--
		9-p Cable Hood	2411 021 02467
Intercom	15-pin female	2411 022 06157	--
		15-p Cable Hood	2411 021 02465
Audio Output	3-pin male	--	2432 026 00185

LDK4053 Base Station
Adjustment Procedures

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Introduction

This base station is factory tested and adjusted for operational use. Under normal circumstances, the internal potentiometers do not need to be adjusted. If it is discovered that the camera is misaligned, the following procedure is given as a guide for competent service personnel to realign the unit. If no improvement can be achieved or an adjustment is out of range, please contact your local supplier or the nearest Philips Service Centre.

CAUTION

Do not attempt to improve performance
by adjusting individual potentiometers
as this could lead to complete misalignment of the camera.

CAUTION

Switch off the power supply to the base station before removing or
replacing printed circuit boards.

Base Station
Adjustment Procedure
(PAL/NTSC)

General

The video channel adjustment procedure is designed as a total unit and must be carried out sequentially from the start. Do not change the position of switches or jumpers unless instructed to do so in the procedure.

Test Equipment

The following is a list of equipment required to carry out the adjustment procedure:

- Set of board extenders LDK 4840/10
- Oscilloscope (40 Mhz)
- Video Level Meter
- Waveform monitor
- Vectorscope

Set-up Instructions

Before carrying out any adjustments the following steps are recommended:

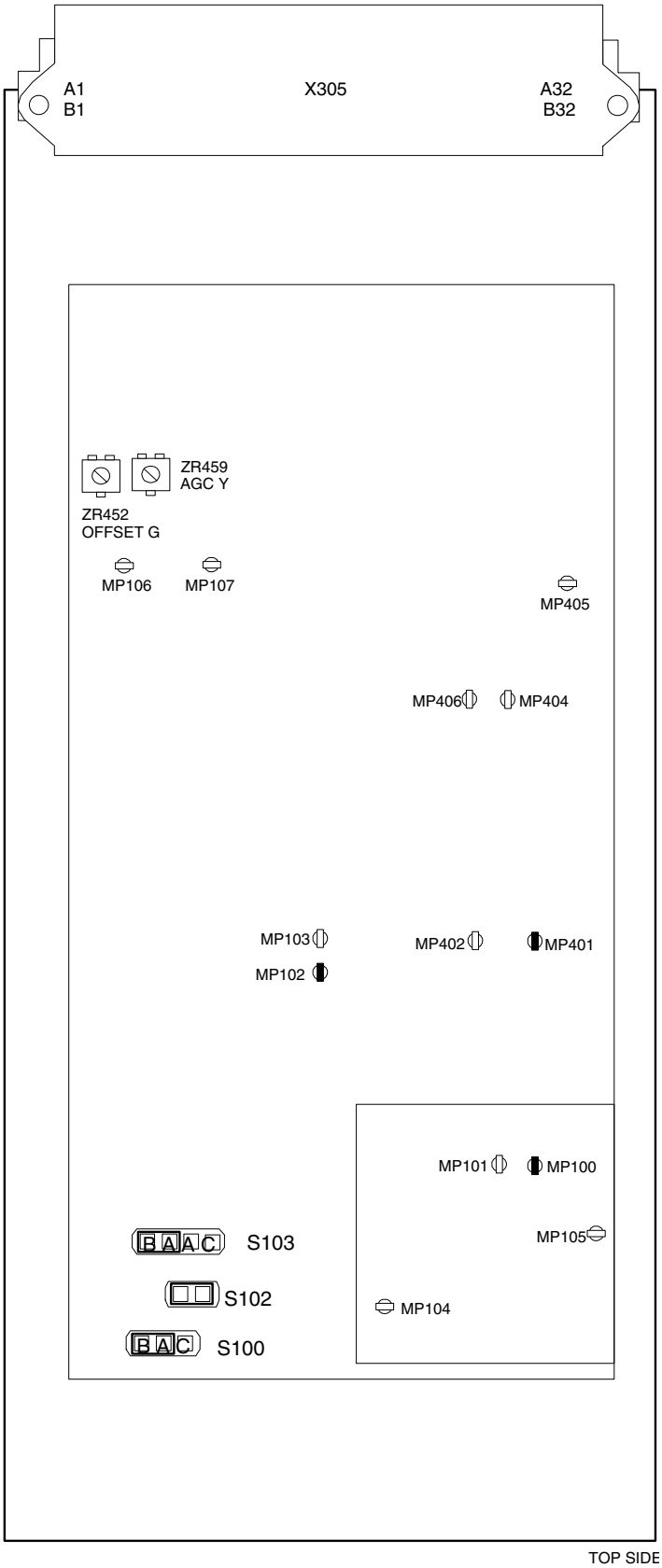
- Install the camera on a tripod.
- Attach the lens and the necessary cables.
- Open the front cover of the base station.
- Connect an OCP/MCP to the base station.
- Switch camera to the remote mode
- Connect base station to AC power source

This adjustment procedure can be used with PAL and NTSC configurations.

Video Channel Adjustment Procedure

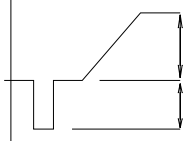
Step	Action	Measurement Point	Adjustment Point	Required Result
	Initial Adjustment Position			
1.	Ensure that the camera head video channel adjustments have been carried out.			
2.	On OCP or MCP recall the standard file settings.			

Video Multiplexer Green Board

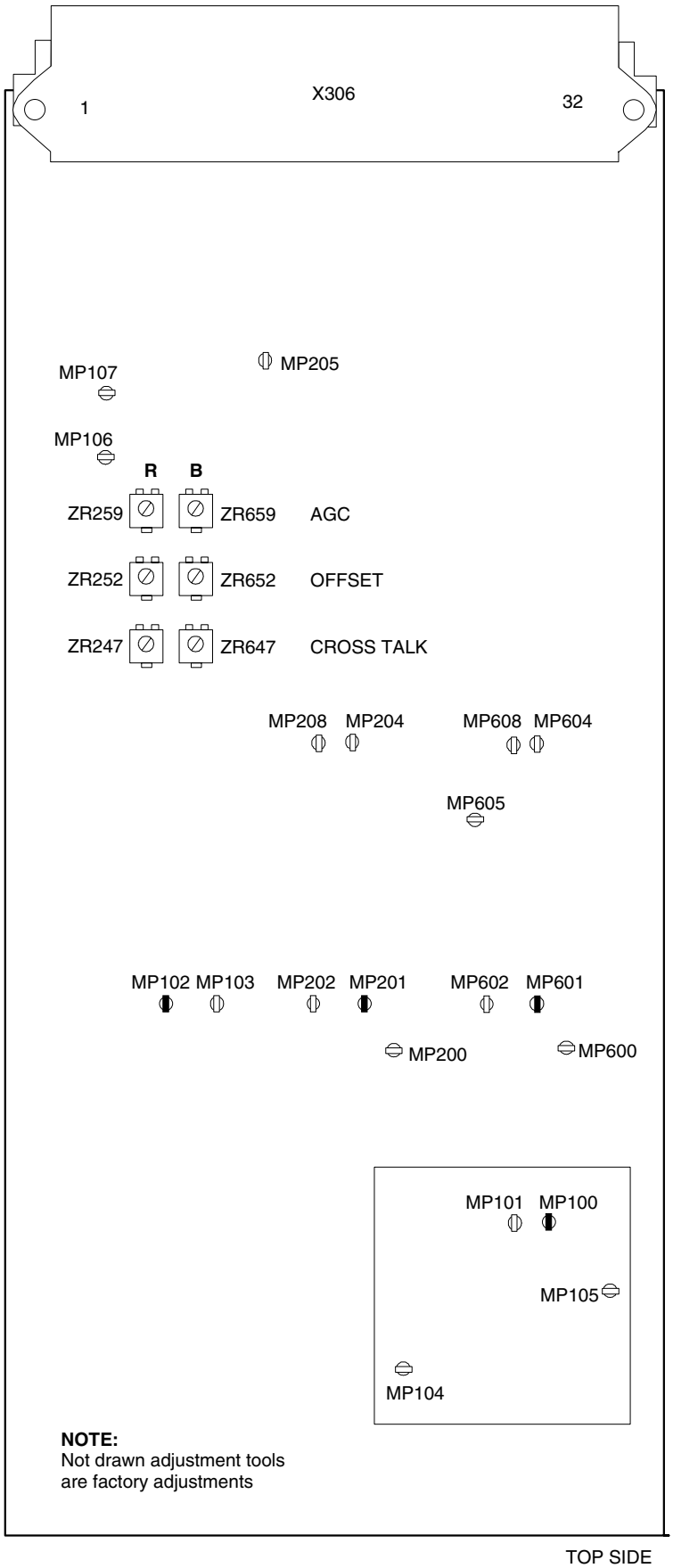


VIDEO MULTIPLEXER GREEN 8395

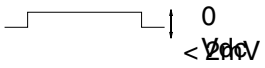
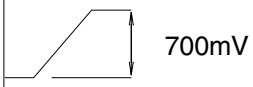
Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
3.	Switch off knee.			
4.	Switch off gamma.			
5.	Switch off matrix.			
6.	Set monitoring to G.			
7.	Switch off contour.			
8.	Set filter to cap.			
9.	Set Auto Iris off.			
	<u>Green Video Channel</u>			
10.	Place the video mux. G board on service extender and switch on power.			
11.	Connect oscilloscope to the measurement point and adjust the offset potentiometer so that the dc level is 0V within the tolerance of 2mV.	X305 - B22	ZR452	0 Vdc < 2mV
12.	Switch on the test sawtooth.			
13.	Connect oscilloscope to the measurement point and adjust the AGC potentiometer for an amplitude of 700mV.	X305 - A23	ZR459	 700mV G + SYNC.
14.	Switch off power. Return the video mux. G board to its position in the base station.			

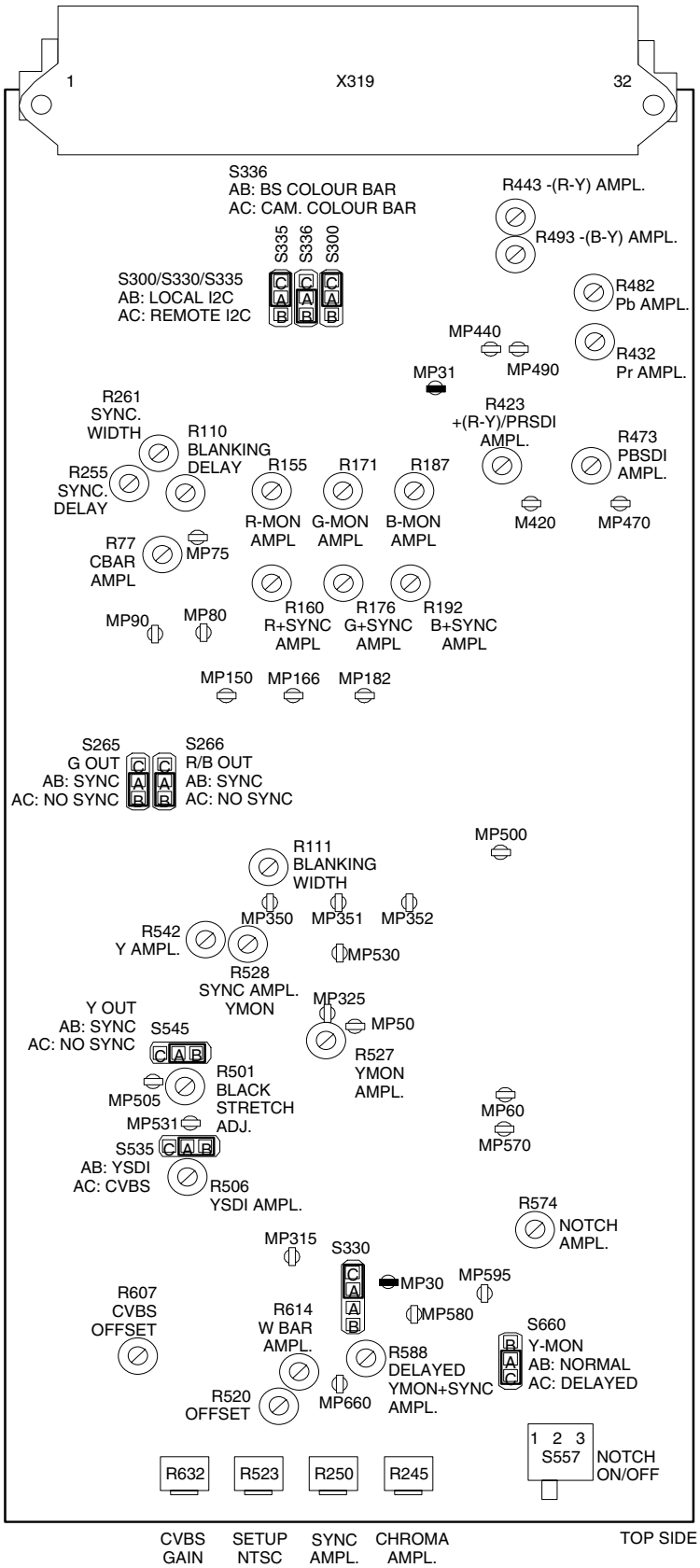
Video Multiplexer Red/Blue Board



Video Channel Adjustment Procedures (continued)

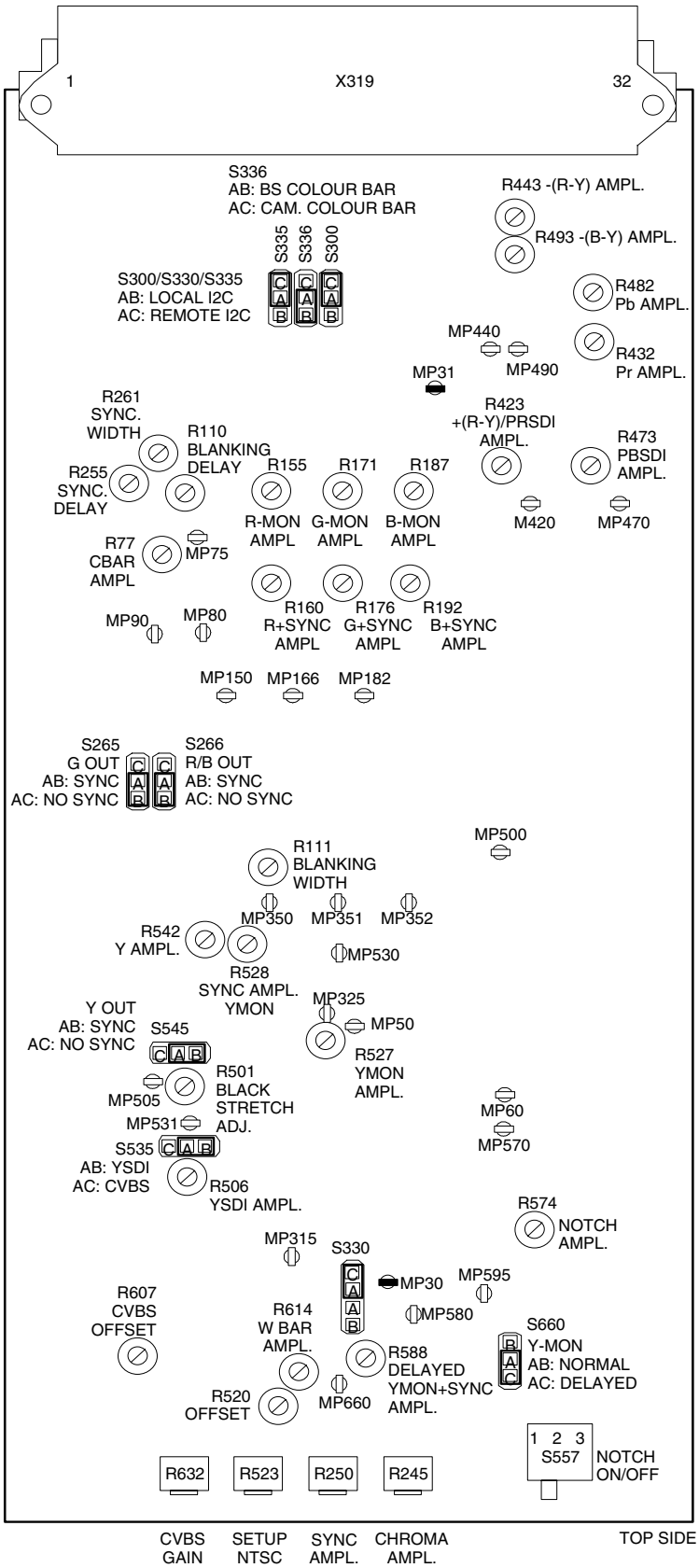
Step	Action	Measurement Point	Adjustment Point	Required Result
	Red and Blue Video Channels			
15.	Place the video mux. R/B board on service extender and switch on power.			
16.	Switch off the test sawtooth.			
17.	Connect oscilloscope to the measurement points and adjust the offset potentiometers so that the dc level for red and blue signals is 0V within the tolerance of 2mV.	X306 - A23(R) X306 - A28(B)	ZR252 ZR652	
18.	Trigger the oscilloscope on Ext. V-trig.			
19.	Connect oscilloscope to the measurement points and adjust the potentiometers so that the blue crosstalk which occurs on the 11th line after the V-pulse is reduced to a minimum in red and the red crosstalk which occurs on the 10th line after the V-pulse is reduced to a minimum in blue.	X306 - A23(R) X306 - A28(B)	ZR247 ZR647	
20.	Switch on the test sawtooth.			
21.	Connect oscilloscope to the measurement points and adjust the AGC potentiometers for an amplitude of 700mV for red and blue signals.	X306 - A23(R) X306 - A28(B)	ZR259 ZR659	
22.	Switch off power. Return the video mux. R/B board to its position in the base station.			

Coder B/W Board



Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
	Coder B/W Board			
1.	Place the coder B/W board on service extender and switch on power.			
2.	Cap lens and switch on the test sawtooth signal.			
3.	Connect oscilloscope to the measurement point and adjust the sync. amplitude potentiometer to obtain a sync. output amplitude of 300mV.	X319 - B30	R250	300mV
4.	Connect oscilloscope to each measurement point in turn and adjust the potentiometers to obtain an output amplitude of 700mV in each MON. channel.	X319-C28(G) X319-C26(R) X319-C30(B)	R171 R155 R187	700mV 700mV 700mV
5.	Connect oscilloscope to each measurement point in turn and adjust the potentiometers to obtain an output amplitude of 700mV in each channel.	X319-B30(G) X319-B29(R) X319-B31(B)	R176 R160 R192	700mV 700mV 700mV
6.	With the oscilloscope connected to MP351, switch between 100% colour bars and test sawtooth and adjust the potentiometer to make the colour bars the same amplitude as the test sawtooth.	MP 351	R77	700mV
7.	Switch on the colour bars and set saturation control to nominal.			
8.	Connect an unterminated oscilloscope to the measurement point and adjust the Pr potentiometer to obtain a peak-to-peak amplitude of 1050mV.	X319 - B26	R432	1050mV
9.	Connect an unterminated oscilloscope to the measurement point and adjust the +(R-Y) potentiometer to obtain a peak-to-peak amplitude of 1400mV.	X319 - C24	R423	1400mV
10.	Connect an unterminated oscilloscope to the measurement point and adjust the -(R-Y) potentiometer to obtain a peak-to-peak amplitude of 1400mV.	X319 - C25	R443	1400mV
11.	Connect an unterminated oscilloscope to the measurement point and adjust the Pb potentiometer to obtain a peak-to-peak amplitude of 1050mV.	X319 - B27	R482	1050mV
12.	Connect an unterminated oscilloscope to the measurement point and adjust the Pb (SDI) potentiometer to obtain a peak-to-peak amplitude of 1050mV.	X319 - B10	R473	1050mV

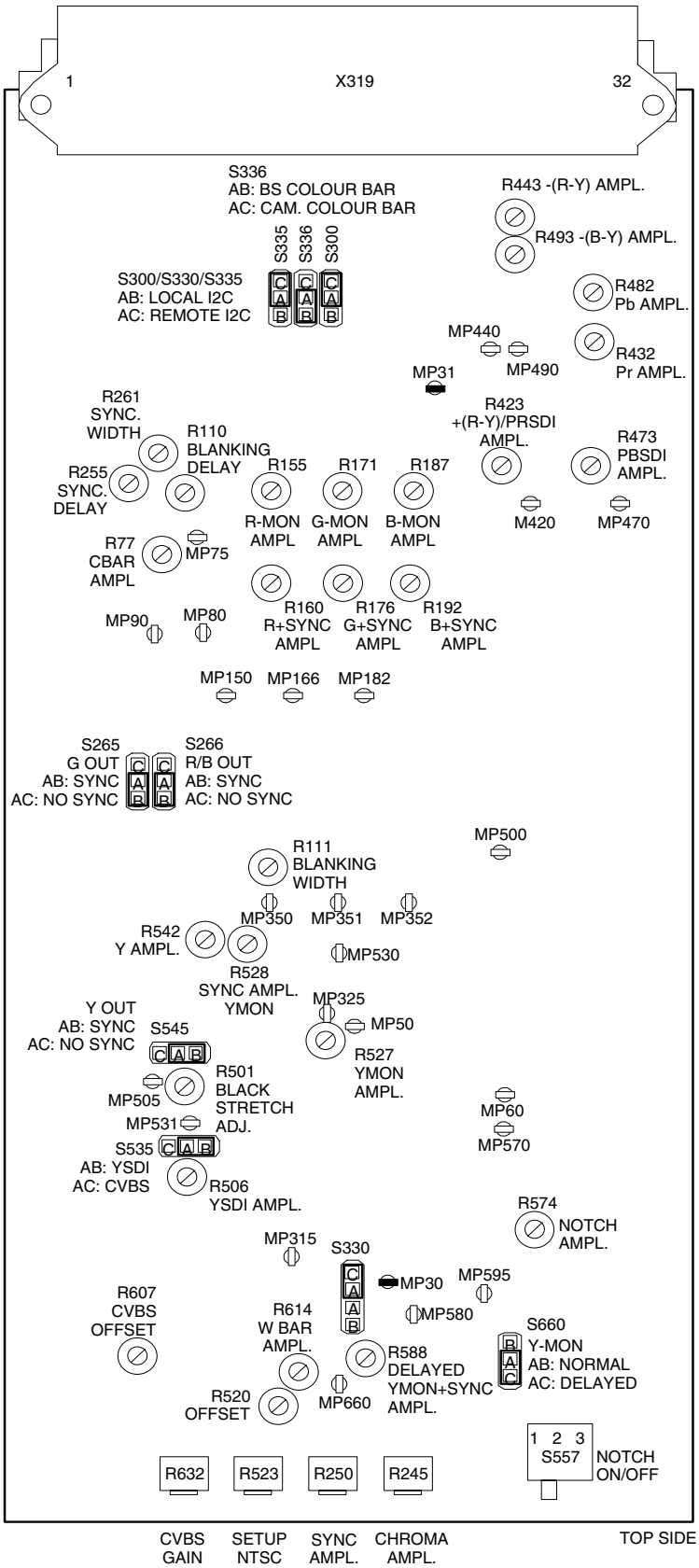


Coder B/W Board

Video Channel Adjustment Procedures (continued)

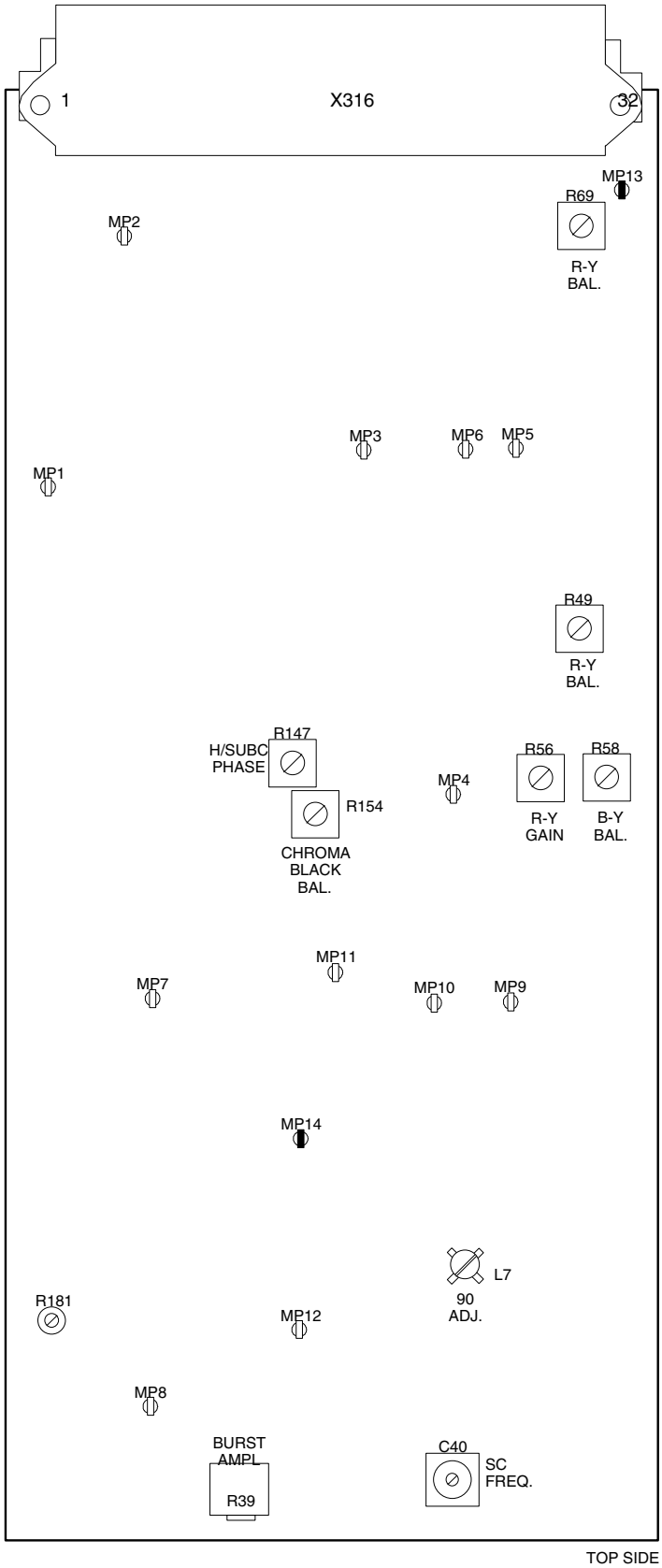
Step	Action	Measurement Point	Adjustment Point	Required Result
13.	Connect an unterminated oscilloscope to the measurement point and adjust the -(B-Y) potentiometer to obtain a peak-to-peak amplitude of 1784mV.	X319 - C23	R493	1784mV
14.	Connect an unterminated oscilloscope to the measurement point and adjust the Y (SDI) potentiometer to obtain a peak-to-peak amplitude of 1400mV.	X319 - B6	R506	1400mV
15.	Connect an unterminated oscilloscope to the measurement point and adjust the Y+SYNC potentiometer to obtain a peak-to-peak amplitude of 1400mV.	X319 - B28	R542	1400mV
16.	Switch off colour bars.			
17.	Turn set-up poteniometer R520 completely counterclockwise.			
18.	While varying the black stretch from minimum to maximum, connect the oscilloscope to measurement point MP505 and adjust the black stretch potentiometer so that the white and black levels remain at the same level.	MP 505	R501	White and black levels stay the same
19.	For PAL, Connect oscilloscope to the measurement point and adjust the potentiometer to obtain a Sync. amplitude of 300mV.	MP 530	R528	300mV
	For NTSC, Connect oscilloscope to the measurement point and adjust the potentiometer to obtain a Sync. amplitude of 286mV.	MP 530	R528	286mV
20.	For PAL, Connect oscilloscope to the measurement point and adjust the potentiometer to place the black level at the same level as the blanking.	MP 530	R520	Black level same as blanking level
	Switch on colour bars. Adjust the gain potentiometer to obtain a Y amplitude of 700mV.	MP 530	R527	700mV
	For NTSC, Connect oscilloscope to the measurement point and adjust the set-up potentiometer to obtain a set-up level of 50mV.	MP 530	R520	50mV
	Switch on colour bars. Adjust the gain potentiometer to obtain an amplitude difference of 495mV between set-up and white bar.	MP 530	R527	495mV
	Readjust the set-up potentiometer to obtain a set-up level of 54mV.	MP 530	R520	54mV

Coder B/W Board



Video Channel Adjustment Procedures (continued)

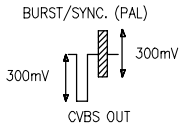
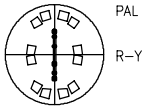
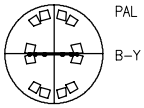
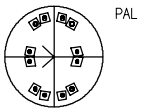
Step	Action	Measurement Point	Adjustment Point	Required Result
21.	While switching jumper S660 between position AB and position AC, connect the oscilloscope to the measurement point and adjust the delayed Y gain potentiometer so that both amplitudes are the same.	X319 - A24	R588	
22.	Connect the oscilloscope to the measurement point and adjust the CVBS offset potentiometer to place the blanking level at 0mV.	X319 - B4	R607	
23.	For PAL, Connect the oscilloscope to the measurement point and adjust the CVBS gain potentiometer to obtain an output amplitude of 700mV.	X319 - B4	R632	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the CVBS gain potentiometer to obtain an output amplitude of 714mV.	X319 - B4	R632	714mV
24.	For NTSC, Connect the oscilloscope to the measurement point and adjust the W-BAR potentiometer to obtain an white bar amplitude of 714mV.	X319 - B4	R614	714mV
25.	Connect the oscilloscope to the measurement point and adjust the width of the sync.	X319 - B4	R216	4.8 uS
26.	Connect the oscilloscope to the measurement point and adjust the width of the blanking.	X319 - B4	R111	12 uS (PAL) 10.6 uS (NTSC)
27.	Switch off power. Return the coder B/W board to its position in the base station.			

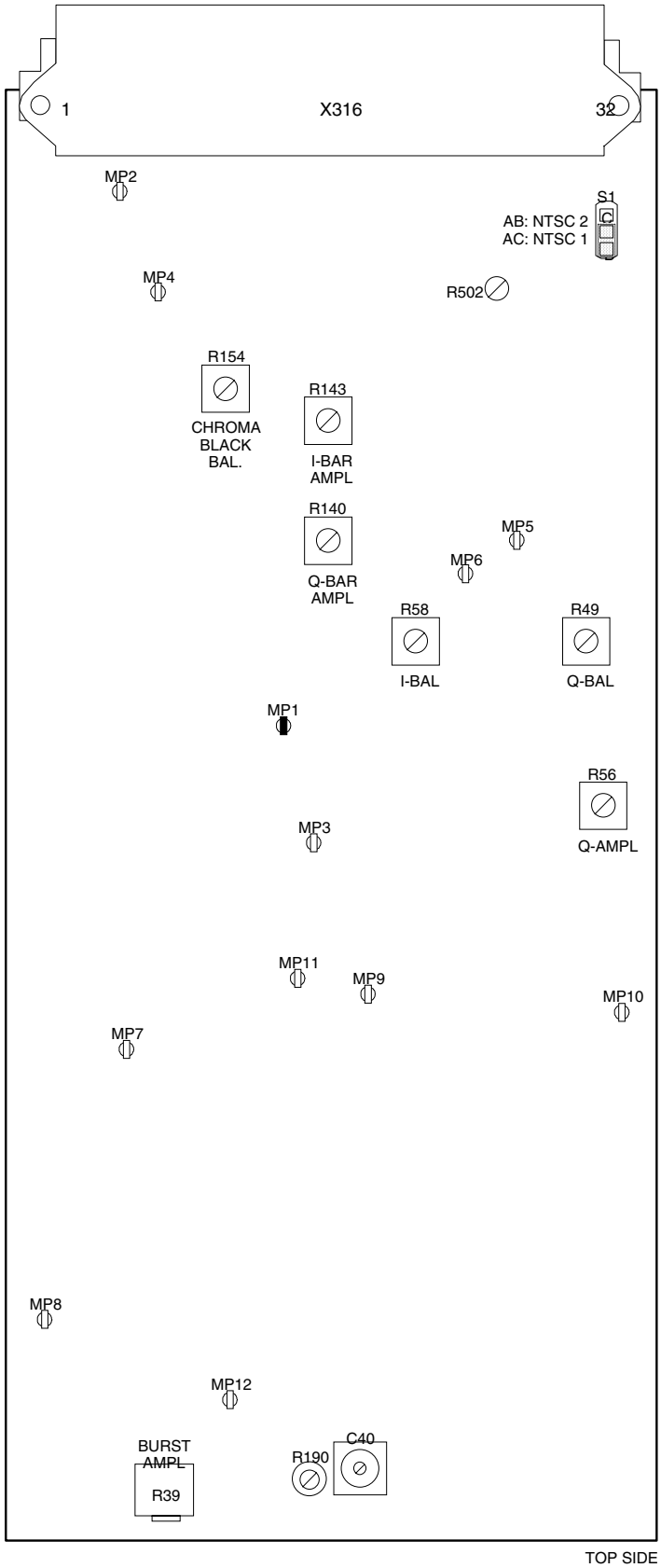


TOP SIDE

Colour Encoder PAL Board

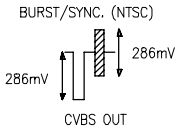
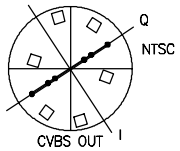
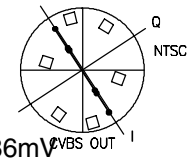
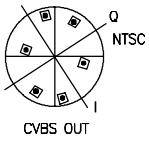
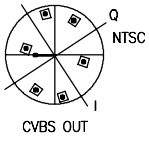
Video Channel Adjustment Procedures (continued)

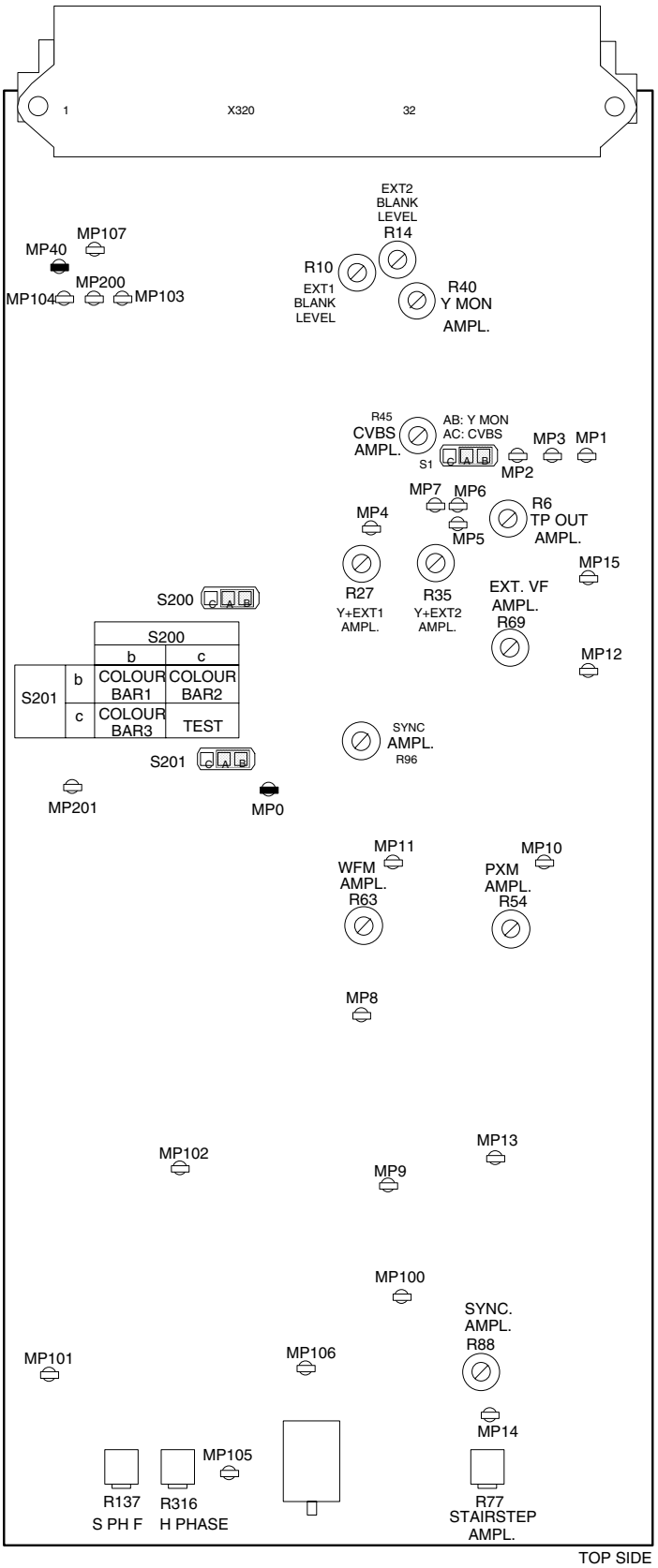
Step	Action	Measurement Point	Adjustment Point	Required Result
	PAL Encoder Adjustment			
1.	Place the PAL encoder board on service extender and switch on power.			
2.	Switch on colour bars.			
3.	Adjust the burst amplitude potentiometer to obtain a burst amplitude of 300mV.	CVBS out	R39	
4.	Connect MP6 to MP13 (ground). Use R56 to adjust the R-Y amplitude to approximately 100%. With the phase control on the vectorscope place the R-Y signal vector along the vertical axis.	CVBS out	Phase control	
5.	Disconnect MP6 and connect MP5 to MP13 (ground). Observe the vectorscope and adjust the variable inductor to place the B-Y signal vector along the horizontal axis.	CVBS out	L7	
6.	Disconnect MP4. Observe the vectorscope and adjust the output signal with the chroma amplitude potentiometer (R263) on the front of the Coder B/W board and the R-Y gain potentiometer to position the vectors in the middle of the vectorscope boxes.	CVBS out	R263 (Coder B/W Board) and R56	
7.	Readjust the burst amplitude potentiometer so that the burst vectors touch the vectorscope markings for the burst (=300mV).	CVBS out	R39	
8.	Switch off power. Return the PAL encoder board to its position in the base station.			



Colour Encoder NTSC Board

Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
	NTSC Encoder Adjustment			
1.	Place the NTSC encoder board on service extender and switch on power.			
2.	Switch on the colour bars.			
3.	Adjust the burst amplitude potentiometer to obtain a burst amplitude of 286mV.	CVBS out	R39	
4.	Connect MP6 to MP1 (ground). Use R56 to adjust the Q amplitude to approximately 100%. With the phase control on the vectorscope place the Q signal vector along the Q axis, and adjust R140, the Q-bar potentiometer, to obtain a Q-bar amplitude of 286mV	CVBS out	Phase control R140	 286mV
5.	Disconnect MP6 and connect junction R43/ C28 to MP1 (ground). Observe the vectorscope and adjust the variable inductor to place the I signal vector along the I axis, and adjust R143, the I-bar potentiometer, to obtain a I-bar amplitude of 286mV	CVBS out	L7 R143	 286mV
6.	Disconnect junction R43/C28. Observe the vectorscope and adjust the output signal with the chroma amplitude potentiometer (R263) on the front of the Coder B/W board and the Q amplitude to position the vectors in the middle of the vectorscope boxes.	CVBS out	R263 (Coder B/W Board) and R56	
7.	Readjust the burst amplitude potentiometer so that the burst vectors touch the vectorscope markings for the burst (=286mV).	CVBS out	R39	
8.	Switch off power. Return the NTSC encoder board to its position in the base station.			



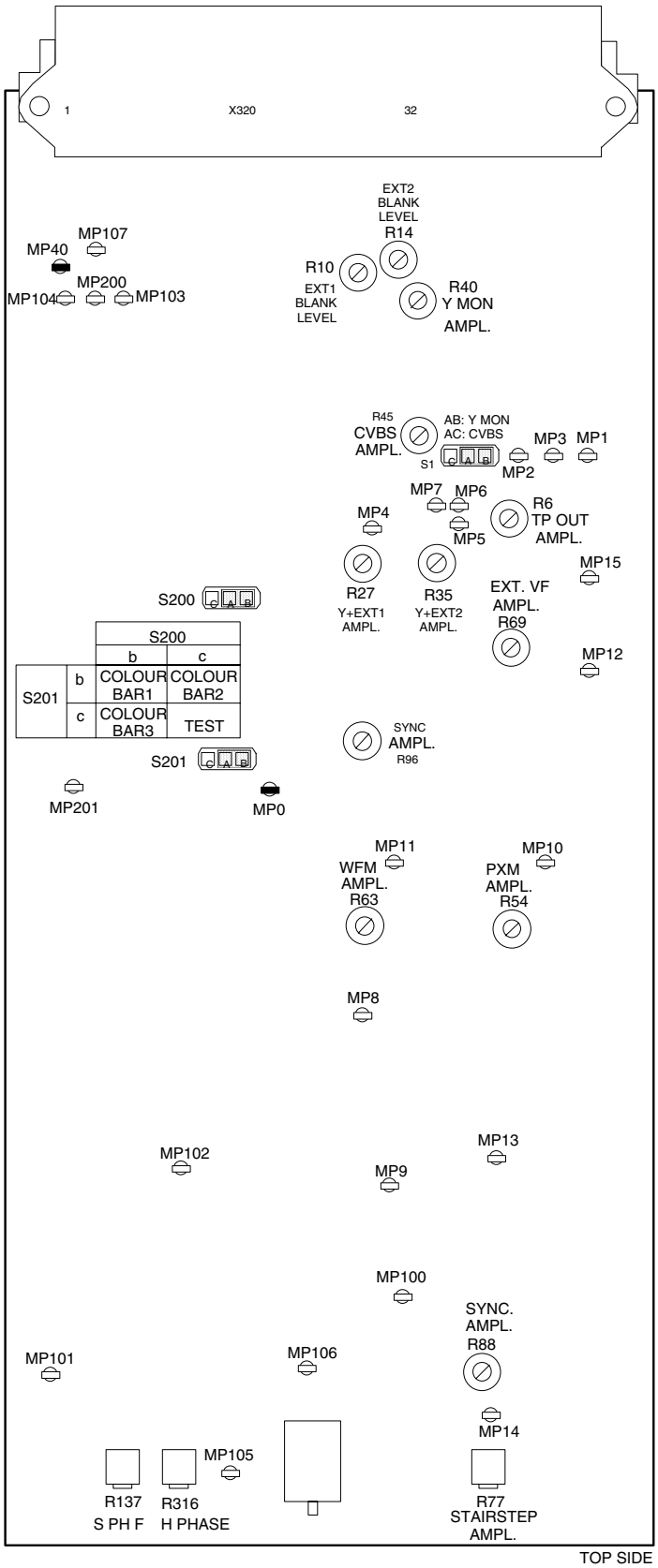
TOP SIDE

Monitoring/ Test Board

Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
	Mon./Test Board			
1.	Place the mon./test board on service extender and switch on power.			
2.	Apply a nominal video signal to the EXT 1 input connector at the rear of the base station.			
3.	Connect the oscilloscope to the measurement point and adjust the DC EXT 1 potentiometer to place the blanking level at 0mV.	MP 2	R10	
4.	Apply a nominal video signal to the EXT 2 input connector at the rear of the base station.			
5.	Connect the oscilloscope to the measurement point and adjust the DC EXT 2 potentiometer to place the blanking level at 0mV.	MP 3	R14	
6.	Apply a nominal CVBS signal to the TP input connector at the rear of the base station.			
7.	Connect the oscilloscope to the measurement point and adjust the TP out amplitude potentiometer to obtain the same amplitude as the TP input signal.	MP 15	R6	
8.	For PAL, Connect the oscilloscope to the measurement point and adjust the Y+EXT 1 potentiometer to obtain a signal amplitude of 700mV, and adjust the sync potentiometer to obtain a sync amplitude of 300mV.	MP 4	R27 R96	700mV 300mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the Y+EXT 1 potentiometer to obtain a signal amplitude of 714mV, and adjust the sync potentiometer to obtain a sync amplitude of 286mV.	MP 4	R27 R96	714mV 286mV
9.	For PAL, Connect the oscilloscope to the measurement point and adjust the Y+EXT 2 potentiometer to obtain a signal amplitude of 700mV.	MP 5	R35	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the Y+EXT 2 potentiometer to obtain a signal amplitude of 714mV.	MP 5	R35	714mV

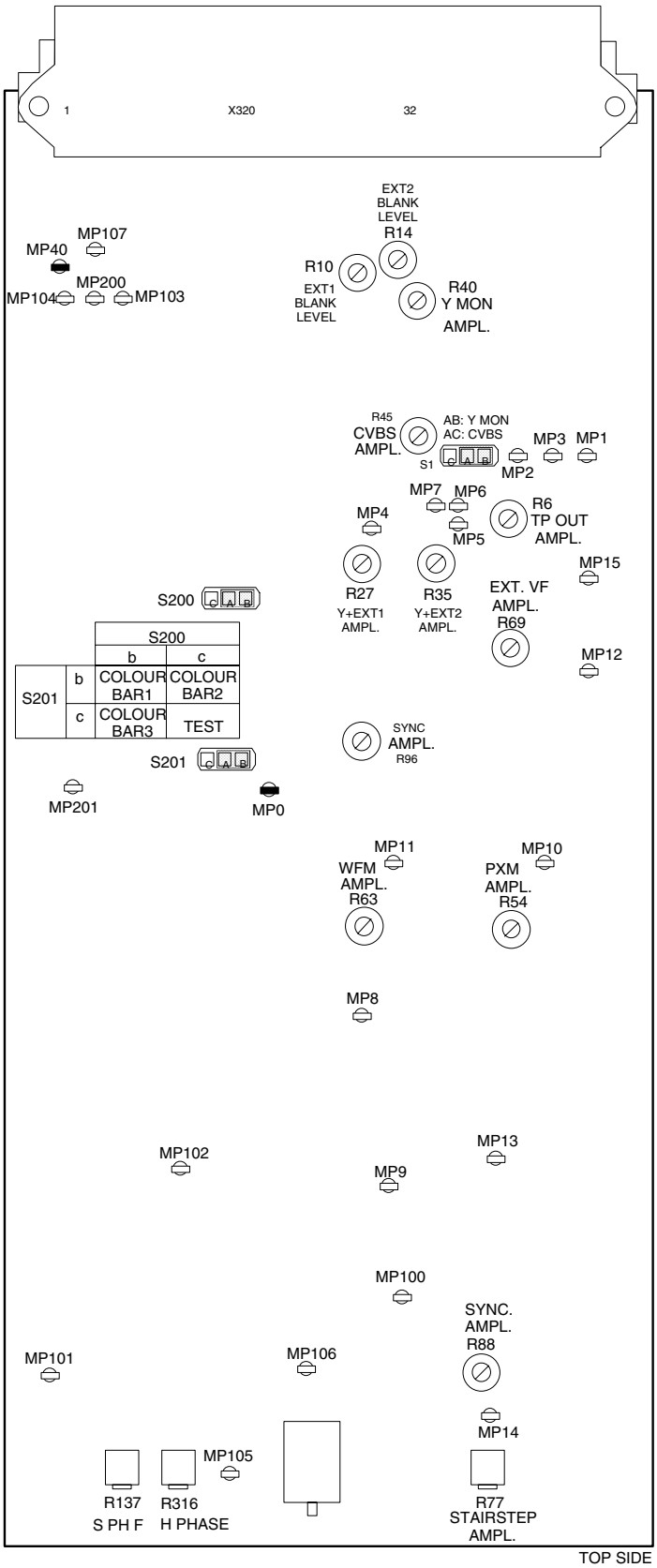
Monitoring/ Test Board



Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
10.	For PAL, Connect the oscilloscope to the measurement point and adjust the Y MON. potentiometer to obtain a signal amplitude of 700mV.	MP 6	R40	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the Y MON. potentiometer to obtain a signal amplitude of 714mV.	MP 6	R40	714mV
11.	For PAL, Connect the oscilloscope to the measurement point and adjust the CVBS potentiometer to obtain a signal amplitude of 700mV.	MP 7	R45	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the CVBS potentiometer to obtain a signal amplitude of 714mV.	MP 7	R45	714mV
12.	For PAL, Connect the oscilloscope to the measurement point and adjust the PXM potentiometer to obtain a signal amplitude of 700mV.	MP 10	R54	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the PXM potentiometer to obtain a signal amplitude of 714mV.	MP 10	R54	714mV
13.	For PAL, Connect the oscilloscope to the measurement point and adjust the WFM potentiometer to obtain a signal amplitude of 700mV.	MP 11	R63	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the WFM potentiometer to obtain a signal amplitude of 714mV.	MP 11	R63	714mV

Monitoring/ Test Board



Video Channel Adjustment Procedures (continued)

Step	Action	Measurement Point	Adjustment Point	Required Result
14.	For PAL, Connect the oscilloscope to the measurement point and adjust the WFM/PXM SYNC. potentiometer to obtain a signal amplitude of 300mV.	MP 11	R88	300mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the WFM/PXM SYNC. potentiometer to obtain a signal amplitude of 286mV.	MP 11	R88	286mV
15.	For PAL, Connect the oscilloscope to the measurement point and adjust the EXT VF potentiometer to obtain a signal amplitude of 700mV.	MP 12	R69	700mV
	For NTSC, Connect the oscilloscope to the measurement point and adjust the EXT VF potentiometer to obtain a signal amplitude of 714mV.	MP 12	R69	714mV
16.	Connect the oscilloscope to the measurement point and adjust the STAIRSTEP potentiometer to obtain a peak to peak amplitude of 10V.	MP 14	R77	10V
17.	Switch off power. Return the mon./test board to its position in the base station.			